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Original Contributions.

TO MAKE BACKINGS FIT PORCELAIN FACINGS.

BY WILLIAM H. TRUEMAN, D D.S., PHILADELPHIA.

Permit me to suggest a quicker, easier and better way than that given on page 797 of the November, 1899, DIGEST. The method I now intend to describe, disclaiming originality, however, requires the use of a small-size Parker Shot Swage, a little appliance that will, in the time saved, very soon pay for itself in a laboratory where porcelain facings are used, and will enable a skilled or unskilled workman to do better work. It is best to use for that portion of the backing that goes next the porcelain, soft metal, either soft platinum or a gold alloy that is soft and pliable. After the porcelain facing has been fully fitted, adjust the backing (it may be made quite thin, say No. 28 or 30), letting it extend beyond the tooth as much as is desired, and fit it to the tooth as neatly as may be quickly done with a burnisher. Now anneal, place it on the tooth and secure by riveting, or as I much prefer, by splitting the pins. Wrap it in a piece of thin paper to keep the shot from contact with either porcelain or metal. Pour sufficient shot in the swage to form a bed for the tooth, lay tooth face down upon it, fill up with shot, place the plunger in position and firmly screw it up between the jaws of a strong vice, or drive the plunger down by a few blows of a heavy hammer. It is not necessary to strike heavy blows; a light hammer gives a rebounding blow, a heavy hammer a solid one, and it is a solid blow that is needed. I very much prefer the vice; it gives the pressure that is most effective and mars the swage less. When the swage is opened the shot will be found very compact. A few light taps with a wooden or copper mallet on the outside and bottom of the swage quickly dislodges it, however, and on unwrapping the tooth the backing will be found to fit like a glove, and may be at once invested and soldered. The method Dr. Cooper explains I used many years, but the shot swage has completely supplanted it.

It was with fear and trembling that I first placed in the swage a thin, delicate tooth and subjected it to the strong pressure of the vice jaws, but it came out all right. If the backing is made thin, of soft metal, it does not require much pressure to secure a perfect fit, and in less time than is required to read this description.

In this connection permit me to refer to an article by Dr. H. J. Goslee of Chicago, in which he advocates, in order to make the backings more protective in crown and bridgework, grinding the cutting edge from the back of the tooth at an acute angle to almost a feather edge, letting the backing extend over it, so that the backing takes all the pressure; it forms really the cutting edge of the tooth. Skillfully done, and "backed off," the metal scarcely shows. Since reading that article I have adopted this suggestion; usually laying along the upper edge of the backing a thick piece of metal when soldering the backing, to make up for the substance removed from the tooth and to give to it a solid edge. I not infrequently make the backing of thin platinum, and flow over this while on the tooth pure or coin gold in sufficient amount to give strength and contour.

I have made, as an adjunct to the swage, a tin tray about six inches square and one and a half deep, one corner arranged so as to form a funnel. The shot I keep in a glass bottle. I fill and empty the swage over the tray. This I have found a convenience, keeping the shot from the work-bench. Do not oil the shot, as it is not at all necessary. The shot swage is a useful appliance for many purposes in a dental laboratory. The Berry Dental Mfg. Co. advise the use of cornmeal, or any of the recently introduced prepared breakfast oatmeals, etc., for swaging purposes in place of shot, sand, etc. I have tried cornmeal in the small shot swage and find it to work perfectly, better and easier than shot. For swaging crowns it is far superior to any of the many suggestions I have tried.

ORAL PROPHYLAXIS.

BY G. V. I. BROWN, D.D.S., MILWAUKEE. READ BEFORE THE WISCONSIN STATE DENTAL SOCIETY, AT MADISON, JULY 18-20, 1899.

"Prophylaxis" means the prevention of disease, and it is one of those subjects of which too much cannot be said. My purpose is not to go over the ground so thoroughly beaten, by calling attention to the fact that many pathological local conditions, concerning

essentially the mouth, teeth, jaws, mucous membrane and associated nervous, vascular and glandular parts, all intimately related as they are; or affections of more general nature, including diseases of the stomach, intestines, general nervous affections, anemia, pyemia, septicemia, etc., may be caused by neglect of the oral cavity, because all present are thoroughly familiar with those matters. There are, however, some phases of the subject that do seem to need consideration, because their importance is commonly overlooked, and because there is a wide chasm between laboratory results and the actual practical conditions to be overcome in dealing directly with the secretions and surfaces in the mouth. If, as has been stated, the term prophylaxis signifies prevention of disease, then in order that disease may be prevented it is first necessary that one should know how to recognize it, so diagnostic symptoms become a necessary part of the introduction of this discussion.

Certainly no part offers greater opportunity for the disclosure of both general and local pathologic conditions than the mouth, and it is my wish to emphasize the value of cultivating a habit of close observation of the little things that are Nature's signals of distress, which she flies always. The general contour and appearance of the face and eyes, the habitual action of certain muscles that give expression of health and happiness, or pain and trouble, of freedom from care or effect of some wasting disease or mental disturbance, perhaps the twitching of some little muscle may reveal some serious brain lesion. The color of the lips and general character of the mucous surfaces will indicate anemia or its reverse condition, or point to the likelihood of some of the several abnormal conditions of the blood and mark, particularly in the young, disturbances of the digestive tract, specific disease, hereditary taint or scrofulous tendencies.

The form and surface of the tongue has from time immemorial been the sheet-anchor of the general practitioner; the coating of its papillary surface was in good old days considered a sure sign of diseases that are much less readily decided upon to-day without the aid of the microscope. Hare, in a recent work on physical diagnosis, makes the following statement: "The appearance of the surface of the tongue varies greatly even in health, according to the condition of its mucous membrane and the epithelium covering it. The most common attractions in its appearance are due to mere

superficial coatings or fur, which consist of epithelial cells, micro-organisms of many kinds and abnormally-shaped living epithelium. There are, however, very few conditions of the coating of the tongue which are pathognomonic of any one disease, since the coating is produced by local conditions of the mouth rather than by disease itself." Yet notwithstanding the difference between this modern view and the older writers, the same work contains illustrations of so-called typhoid tongue, bilious tongue, tongue of chronic gastric catarrh with anemia, and descriptions of appearance of tongue associated with a very large number and variety of diseases.

The jaws and teeth can tell us at once the social standing, the early training, the habits of life of a patient, or can indicate in individuals the habit of mouth-breathing, catarrh, vegetations in the naso-pharynx, as well as general bodily condition.

We are all accustomed to the habitually open mouth, high contracted vault, saddle-shaped arch, and various irregularities of the teeth commonly associated with mouth-breathing, nasal catarrh and enlarged tonsils. Their significance is generally understood, but we do not urge as we should the early widening of the arch, and often neglect this opportunity to give space until the crowding of the parts in the course of development has helped to cause deviations of the nasal septum and narrowing of the air passages through the nose, which have produced a condition favorable to the formation of spurs, enlargements of the turbinated bones and hypertrophic changes in the naso-mucous membrane. Then, too, by failing to call attention to the necessity for correction of such abnormalities as lie within our own domain, and recommending such cases to a competent specialist upon nose and throat diseases, we have helped deprive the growing child of the fullest possible development and perhaps lessened the natural power of resistance of the healthful body to infectious and other diseases.

A study of the occlusal surfaces of the teeth is something far beyond us at this time. Bonwill, Angle, Walker and others have helped to open the way for great possibilities, and the time is undoubtedly at hand when the whole scheme of present methods of operation will be vastly improved with regard to care of occlusal surfaces; but we can note to advantage the abraded surfaces of teeth, we can study the manner of bringing into approximation the worn crowns of teeth that exactly fit the surfaces each have ground

upon the other. It is possible to study elongations of particular teeth, or tipping in the arch caused by early loss of some tooth through extraction, and follow out the relation of these things to pyorrheal pockets, gingival irritation, neuralgias of the trigeminous, spasmodic affections of the muscles of the face and jaws, and in so doing it will be demonstrated to all that even such small service as the grinding down of one or more teeth may not only check the loosening of such teeth in their sockets, but many times will exert an almost inconceivable influence in cases of chronic pain in the head and face, or even, as exemplified in a recent case in my own practice, of muscular spasm of certain muscles of the lower lip and throat, that without other treatment than correction of the occlusion of certain teeth by grinding entirely disappeared.

In regard to the various forms of stomatitis, syphilis, malignant growths, or the discharging fistulæ from diseased teeth and carious or necrotic condition, their treatment should be taken as a matter of course. In this connection, however, care should be taken of jagged edges of teeth or roots that might tend to produce chronic irritation of the mucous membrane, or growths which might at some future time take on the form of malignancy.

The experiments of Dr. Williams have thrown much new light on the etiology of dental caries, and his statements with regard to the efficacy of fillings are not quite in line with former opinions of enthusiasts, but the lesson they teach is essentially one that bids us supplement our work by every prophylactic measure. It is a notable fact that many fillings, whether of gold, amalgam, cement, gutta-percha or other material, will sometimes fail most ignominiously to preserve tooth structure for any considerable length of time; whereas on the other hand, fillings put in under very disadvantageous circumstances, with less care, skill and perfection, frequently last on almost indefinitely, remaining intact through years and years, even under most adverse conditions. Now the lesson from this is not that one should recommend carelessness or imperfection in dental operations or should fail to observe those principles conducive to success, but it means that beyond our efforts there is something which renders certain teeth for the time being immune against ravages of those particular forms of bacteria which are most destructive to them, and against certain conditions which are favorable for the growth and destructive influence of such bacteria.

Good results have been obtained with many of the vast number of germicidal agents that are commonly recommended and used; yet there are countless cases where, in spite of every care and the most active application of even the most powerful drugs, suppuration will continue, liquifaction of tissue will go on, and all the destructive conditions of chronic inflammatory processes progress unabated. This is also true in general disease. This question of immunity is too broad and too vaguely understood to consider with benefit at this time, but the active and vital, always prophylactic remedy, cleanliness, can ever be discussed with benefit. Cleanliness is the essential thing in oral prophylaxis, but its accomplishment is not such a simple matter as ordinarily considered. Based upon a series of experiments testing the efficacy as a mouth-wash of hydrogen dioxid (Oakland,) as compared with a 5 per cent solution of carbolic acid and a 1:2000 solution of bichlorid of mercury, I have to offer the following conclusions: Carbolic acid and bichlorid solutions held in the mouth come into contact with only those germs that are superficially located, and destroy them. When a superficial scraping from the mucous membrane is then taken and planted no growth results. When a deeper scraping is taken a growth is easily attained, therefore sterilization is incomplete. When hydrogen dioxid is used it oxidizes the organic deposits about the teeth, loosens up the secretions about the gums, and sets free germs that were at first inaccessible to the action of carbolic acid and bichlorid solutions. If after the germs have been thus set free carbolic acid or bichlorid solutions, or further quantities of hydrogen dioxid be used, the most desirable state of asepsis is obtained.

It is one thing to destroy bacteria by direct contact in the laboratory, and another to attack them upon their native heath, protected by fortifications of mucous secretions, waste products and animal fats, in a country filled with hills and valleys of mucous glands and folds of membrane, hence the unreliability of reports published as to comparative tests of drugs. With more or less variation in strength or rapidity of action any of the germicides commonly recommended will destroy germs when in direct contact, but without some agent to prepare the way by removing the protecting coating, or some force to carry the remedy on into the secluded places, they are absolutely unreliable in the mouth. The essential thing in the treatment of suppurating wounds, or to prevent the formation of

pus, is to make the surrounding conditions unfavorable. There must be a culture media of some kind, and when this is removed it is necessary only to keep it so, and your microorganisms will disappear.

Certainly clinical results prove that H_2O_2 is all-sufficient for every purpose, even in the gravest cases. I recently removed five large sequestræ of bone through an extremely small opening in the palate, in order that speech might not be interfered with by loss of the soft tissues. This of course made cleansing and disinfection doubtful, but although the cause was syphilis, the result has been complete and radical cure of the local manifestation. In empyema of the maxillary sinus, removal of sections of the jawbone, pyorrhea pockets, cleft palate operations, and in a large variety of oral operations, H_2O_2 unaided has proven itself quite sufficient to bring about speedy and good results.

To sum up, it might be stated that by precept, by example, by lectures by dentists in our schools and other places of instruction to the young, the importance of cleanliness and care of the mouth and teeth should be impressed upon the public everywhere, and they should be acquainted with the diseases that might result from neglect of necessary prophylactic precautions. Also the use of a properly shaped tooth-brush, floss silk, dentifrice and a good mouth-wash should all be recommended.

Discussion. *Dr. G. C. Marlow*, Bloomington. Extraction of even one tooth may bring about serious results. A gentleman had all of his teeth extracted, as he supposed, but some time after he felt something in the neighborhood of the lower cuspid. His dentist decided there was a tooth there, and when extracted it was found to be a third molar. The patient, knowing the location of a "wisdom tooth," was very anxious to find out how this one happened to be in such location, and the dentist explained that "it was hunting for something to lean against." This is a great tendency of all teeth, and if we extract one we take away the support of the remainder in the jaw and they immediately look for something to lean against. When a tooth is extracted the one above, in trying to find something to antagonize with, drops down so that we have a stretched condition of the nerve and perhaps severe neuralgia.

Dr. J. N. Crouse. Every practitioner must have observed the difference in different mouths. There may be a dozen children un-

der six years of age without a sound tooth, and the next child examined will have no sign of caries, the mucous membrane and teeth being in perfect condition. Apparently one child is as healthy as the next, but in reality he is not. We find the same condition in adult life. I have had patients leave a competitor because his fillings gave way; and probably came to me just about when they were immune from decay, so I received all the credit; or vice versa—some one else secured my patients in the same way. The most important question to-day is, "What brings about this change in the individual which causes intermittent decay of the teeth?"

STATE BOARDS AND COLLEGE FACULTIES.

BY C. A. KITCHEN, D.D.S., ROCKFORD, ILL. READ BEFORE THE WISCONSIN STATE DENTAL SOCIETY, AT MADISON, JULY 18-20, 1899.

In the establishment of great enterprises there are to be found always men of brains, energy, foresight and unselfish devotion, who seem endowed by nature for such special work. The profession of dentistry is no exception to the rule, for in its earliest history in this country we can point with pride to men who recognized the important place it was destined to fill, and in their wisdom set on foot movements looking to the future success and usefulness of a calling which at the time received but little attention from the people. If at the present day the masses are slow to appreciate true merit, what must have been the condition existing in those early days?

Notwithstanding all efforts made to change existing conditions—to overcome the obstacles standing in the way of progress, the rush of unprincipled and incompetent men into the ranks of the profession alarmed the better class of practitioners and they tried in various ways to stem the tide and correct the evil—by insisting upon longer terms of apprenticeship and increasing the prices for office tuition. Thus even before the days of dental colleges, attempts were made to place restrictions upon students, with the hope of raising the standard of requisite professional attainments. As an example, Dr. Parmley, one of the best operators of his time, gave notice that his terms for teaching the art were to be as follows: For preparing a student to practice in London, \$1,000; for any other city in Great Britain or America, \$700; while for foreign practice in general, \$500; and best of all, he required that applicants must be gentlemen of *liberal education*.

A desire to improve the opportunities of those seeking dental education led Harris, Hayden and others to establish the old Baltimore College of Dental Surgery, and to organize the first board of dental faculties in the world. What an epoch in the history of dentistry. The successful launching of that great enterprise stimulated and encouraged those same men to advance the interests of other undertakings; we find them foremost in introducing dental journalism and equally active in the formation of the first dental societies. These efforts were worthy the hearty support of all who were interested in obtaining dental knowledge, but we have good reason to know that a large number were not ready to accept and to make use of the favorable advantages afforded. The college was not patronized, the journals not eagerly subscribed for, and the dental societies not largely attended.

No one who reads the history of those times will accuse those Fathers of Dentistry of selfish motives. They labored "without fee or hope of reward," except that priceless compensation—the consolation which comes to all who honestly and faithfully perform a recognized duty. We owe them our lasting gratitude for their persistent efforts in striving to elevate the standard of scientific dentistry and insisting so strenuously that dentists must be *educated men*.

While the preparation of young men was in the hands of practitioners like Parmley students were turned out who were well qualified for their duties and were an honor to their worthy preceptors; but there was a vastly greater number, utterly incompetent as teachers, who accepted applicants for short terms, requiring of them no mental or moral attainments, and as there were no legal restraints upon this method, as may be supposed empiricism increased at a rapid rate.

All efforts to remedy the pernicious custom in vogue met with strong resistance, and a war was then and there inaugurated against charlatans which has waged since that time.

Dental Legislation. When dental legislation was first proposed that larger portion of those who were classed as incompetent arrayed themselves in vigorous opposition and stubbornly resisted every attempt to regulate dental practice by legal enactments.

"No rogue e'er felt the halter draw
With good opinion of the law."

Curiously enough, Alabama, almost the poorest state in skilled

dentists at the time, was the first to pass a dental law. By this act an examining board composed of physicians was appointed. (Whether there was one on the board who could tell a sixth-year from a temporary molar is not stated.) However, they were considered competent to pass upon the qualifications of dentists. Dr. Harris said more than fifty years ago, in referring to the Alabama law: "Much may be done even in this way, but the true remedy lies in the general union of educated dentists in a central association, aided and sustained by state societies. Such, acting with as much power from the state laws as surgeons and physicians have, will be able to make the profession honorable, respectable and useful."

Later New York was enabled to secure dental legislation, though differing from that of Alabama. The state was divided into districts, each having a dental society. They aimed to so classify practitioners that the public might be the better able to designate the men worthy of confidence and patronage; hence those who were pronounced worthy of the honor of preferment were granted a degree, M.D.S.—master of dental surgery. This degree was honored and protected by the new law, and those who assumed it or made illegal use of it were severely punished.

Ohio in the year 1868 enacted a dental law that embodied almost completely the principles of recent legislation in the various states. This law vested in the state dental society power to issue certificates to those who were found qualified but did not hold diplomas, while all who had been in continuous practice for five years were considered to have complied with the law.

From the time the state laws became effective dental colleges increased in numbers and their students rapidly multiplied. The long-looked-for opportunity was at hand when colleges and their faculties were masters of the whole field of dental instruction, with power to choose matriculates who were endowed with the mental and moral attributes that would insure improved conditions, increase the influence of educators, and secure the respect and support of all who desired and demanded progress in dentistry.

Now I ask, Have the college faculties made proper use of the power given them? Have they fulfilled our hopes and expectations? Have they guarded the entrance-gates honestly and faithfully since they were stationed as sentinels at the outposts? Have they always insisted upon thorough preliminary examinations to satisfy

themselves that applicants for admission were young men of *integrity* and possessed of sufficient knowledge to meet all the requirements? If they have, how do they account to the profession and the public for those unworthy young men who have *somehow* passed the preliminary examinations, glided through the whole course of dental pupilage, received their diplomas, and are after all found to be deficient in both mental and moral attributes, who usually degenerate into advertising quacks and are a disgrace to the college that too readily granted them favors? We all know many such cases.

I believe that practitioners in general are ready and willing to extend the hand of fellowship and offer fraternal greetings to the young men locating among them who have been thoroughly fitted for the places they expect to fill, and who have a proper estimate of the importance and dignity of their positions; but on the other hand, we can but feel disgust and resentment when the young graduate who has somehow passed into and through a dental college of repute proceeds at once to open up "dental parlors," and to make use of all the well-known devices of charlatans to secure patronage.

The interests of the colleges, of their graduates and of the people are closely interwoven. College faculties know their duty towards their students, and if they always insisted upon a rigid examination there would be nothing to criticise or complain of. If they omit this they stultify themselves, wrong the profession and the public, and injure the prospects of the young men with whom they are too lenient. Afterward there should be a very small number of students who are able to deceive their instructors and secure diplomas from a reputable college by fraud.

Some of you will well remember the strenuous efforts put forth to secure the passage of state dental laws, and you will recall the surprises in store when opposition confronted us from unexpected sources, and the utter indifference of our legislative bodies when we tried to show them the great need of protection for the people.

The next step was to induce prominent and capable dentists to accept positions as examiners on the state boards, and in some cases we found great difficulty in bringing a governor to see any merit in our best selections. Those who were finally appointed to carry out the provisions of the law were in many cases not graduates of dental colleges, but were friendly to the college faculties and seemed anx-

ious to carry out their wishes and to indorse and uphold them in their labors and at the same time to look after the interests of the people by examining carefully all applicants who presented themselves for license to practice.

At the last annual session of the National Association of Dental Examiners, Oct. 14, 1898, a rule was adopted that has caused controversy, and which might with propriety be considered in this paper. The board saw the need of a settlement of the question which has been in dispute for several years, as to the qualifications of young men offering themselves as matriculates in the dental colleges. Let us quote the rule:

RULE VIII.

Section 1. Colleges desiring recommendation to the state boards by the National Association of Dental Examiners shall make application for such recommendation through the Committee on Colleges, on blanks provided for that purpose.

Section 2. Colleges, to be recommended by this Association, shall require of students applying to them for matriculation, a written entrance examination in the following studies:

English	{ Grammar. Composition.	{ Spelling. Punctuation. Grammatical Construction.	Geography	{ Descriptive. Physical.	History	{ United States. General.
Mathematics	{ Advanced Arithmetic. Algebra—through Quadratics. Plane Geometry.	{ Rules of Grammar, Declensions, Conjugations, Construction. Translation of Easy Prose.	Latin	{		

The candidate to make a general average of at least 75 per cent. In lieu of this examination, a certificate of graduation from a high school, college, or university, or an entrance certificate to the freshman class of the academic department of a college or university, may be accepted. The institutions, however, granting these certificates to be accredited as standard by the communities within which they are located. This rule to become operative at the beginning of the session of 1899-1900. In admitting students, who have taken a partial course in other colleges, to advanced standing—junior or senior classes—colleges to be recommended shall require evidence from such students that their first matriculation was in accordance with the requirements under this rule governing the entrance examination.

Section 3. The statements set forth in the application of any college for recommendation shall be verified after investigation by the Board of Dental Examiners of the State in which the college is located, or by other persons, designated by The National Association of Dental Examiners, in case no such State Board exists; and the commendation of such Board shall be essential to such action.

Section 4. The State Boards in connection with this Association are hereby required to become informed of the character of the dental colleges located in their respective States, as to their equipment, facilities, and methods of teaching, and shall report annually to this Association wherein they fail to comply with these requirements.

Section 5. Attendance of students upon three full courses of not less than six months duration each, in separate college years, shall be required before final examination for graduation.

Section 6. Each dental college desiring recommendation must have a teaching faculty composed of at least six individuals and teaching the following branches: Operative Dentistry, Dental Pathology, Dental Prosthetics, Oral Surgery, Anatomy, Physiology, General Pathology (fundamentals), Materia Medica and Therapeutics, and General Surgery. Their students must also be taught the subjects of Chemistry and Bacteriology in laboratories adapted to the purpose, and under suitable instructors. That such college must possess in addition, suitable lecture-rooms, a well appointed dental infirmary, and a general prosthetic laboratory, and must furnish in them systematic instruction to its students.

Section 7. All recommended colleges must maintain these rules and conditions and any violation of them will cancel recommendation.

Note A. We consider it inadvisable for a member of an examining board to be connected with a dental college in any capacity whatever.

Note B. We suggest that each college conforming to these rules shall specifically so state, and publish in its annual announcement the actual preliminary requirements contained in section 2.

No doubt that rule was adopted after much deliberation and a thorough canvass of the conditions existing throughout the country. It covers the ground completely, and I can see no reason why it should receive so much opposition. Is there present a graduate of any college who does not know from cases that have come under his own observation, and from other evidence, that there has been laxity on the part of college faculties in the preliminary examinations?

The Wisconsin State Board on the strength of the rule just read has refused to grant a license to an applicant who holds a diploma from a well known college which does not accept the requirements made upon it, and the courts are appealed to for redress by the applicant for license. The board is perfectly consistent in its course, as it is bound to carry out the instructions of the National Association, of which it is a component part. Can any court decide this controversy to the satisfaction of the parties interested? No; it must be settled by the judgment and good sense of the dental profession at large. I believe it is competent to settle all questions

vital to its interests. If the rule adopted by the Examiners meets its approval and is considered to be a reform measure, then the college faculties must meet the requirements and proceed to carry out the instructions, because "reforms never move backward."

The time has come when all applicants for licenses to practice, even those holding diplomas, should be required to give satisfactory evidence of their actual qualifications. State boards should be armed with this power to examine. Every graduate who successfully passes the ordeal will reflect credit upon his college and prove that most of the college faculties are doing honest, faithful work, while it would uncover the crookedness of those that were not, and bogus colleges would soon cease to exist.

The following clipping will show that the Illinois State Board of Health is prompt to carry out the provisions of the new medical law:

Important steps toward preserving the high standing of the medical profession of Illinois were taken by the state board of health in its meeting held yesterday at the Great Northern Hotel. The spirit of the medical practice act passed by the last legislature and in force July 1 will be carried out, and an examination will be required of every physician desiring to practice in Illinois, regardless of the fact that the letter of the law gives the board the right to license graduates of medical colleges of the state in good standing without first examining them.

Whether the Illinois State Board of Health would avail itself of the discretionary powers conferred upon it by a law originally intended to elevate the standard of the medical profession in the state was a question which attracted the attention of the medical fraternity at large. Had the board of health decided to admit the graduates of any institution to practice in the state without examination by the board in violation of the spirit of the law, which requires that every practicing physician must have a certificate from the state board, the medical profession of Illinois would have suffered largely in the estimation of the profession at large.

"Doctors all over the United States have been watching to see what action the state board of health would take," said Dr. J. A. Egan, secretary of the board, yesterday. "If we had decided to admit the graduates of any institution to practice without examination by the board a Chinese wall would have gone up around Illinois so far as the medical profession is concerned, and the doctors and the medical colleges of the state would be the sufferers. The board, however, will maintain the standard contemplated by the law, and in order to put ourselves on record we passed the following resolution waiving our power to give certificates without examination:

"Resolved, That the Illinois State Board of Health will not consider in good standing for the purpose of granting certificates without examination any medical colleges in Illinois, and that all applicants for a state certificate to practice medicine and surgery in the state of Illinois who are graduates

from medical colleges in good standing, as may be determined by this board, shall, before receiving a certificate, be obliged to pass an examination such as contemplated in section 2 of "An act to regulate the practice of medicine in the state of Illinois," in force July 1, 1899."

A recent dental magazine article entitled "The Diploma Traffic," quotes its authority for the statement that there are as follows: At Kansas City, one; at Jacksonville, one; at Philadelphia, one; at Boston, one; at Milwaukee, three; and at Chicago, eight institutions that furnish diplomas for cash and no questions asked. Between three and four hundred of these worthless diplomas have been scattered in Europe; more than one hundred in Germany alone. "Our home market does not patronize the special American industry, owing to restrictive legislation and the invidious distinction set up by examining boards." "Wisconsin and Illinois are the two states in the Union where the diploma traffic is wide open, and where the law practically allows degrees of all kinds to be sold regardless of the qualifications of their recipients." If these charges are true, and no doubt they are, these two states should be among the first to begin a war of extermination upon bogus colleges and their traffic.

Some of you may object to granting so much power to examining boards, whose membership may be composed of purchasable men, and you may contend that so long as political influence secures those positions for designing men we should have no guarantee of good results; but I believe that if *we* as members of our profession do our whole duty, and if dental societies awake to their interests and properly appreciate their power and influence, there could be created such a strong public sentiment that no governor would think of disregarding our wishes.

College faculties and examining boards now have their duties and responsibilities which cannot be transferred or assigned. They hold in their hands power to make or mar our profession's reputation, but we, members of the dental profession, are the still greater power behind their throne, to direct and assist them in every laudable effort to uphold professional integrity and to carry forward the work committed to their care. Let them not ignore our wishes.

Discussion. *Dr. B. G. Maercklein*, Milwaukee: Who will examine the state boards and ascertain whether or not they are qualified to act as examiners of these students. Most of the men assem-

bled here are graduates of a two years' course. Some have attended only one course, and perhaps many have not attended any. Yet we expect the state boards to examine men who have received superior advantages. Pressure should be brought upon the colleges for better and more perfect instruction, but I do not think the state boards are the ones to dictate.

Dr. G. V. I. Brown, Milwaukee: Dr. Maercklein was on the board for many years, and I would ask if the same conditions prevailed during his term of office. I believe our state board is undoubtedly trying to do as nearly as possible what they think is right. It seems to me the difference between the rules of the Faculties' and Examiners' Associations is very small.

Dr. B. G. Maercklein: The board was no better when I was on it than it is now, and I do not believe a majority of the members could have passed the examinations if you had changed the papers.

Dr. T. W. Brophy, Chicago: Dr. Kitchen stated the Faculties' Association provided that applicants for admission to the colleges must have a certificate from the superintendent of public instruction. This is correct but incomplete. The minimum requirements of the Faculties' Association are that the student must have been admitted into the second year's course of a high school, or produce certificate from the superintendent of public instruction to the effect that the student's education is equivalent to that standard.

Another gentleman has said there is only a slight difference between that standard and the one established by the Examiners. Probably eighty per cent at least of the students who apply for admission to the dental colleges have advantages which would more than meet the Examiners' standard, so far as the high school question is concerned; but according to the Examiners' rulings, it will be impossible at the opening of this fall's session for any man to be admitted to college unless he can read and translate Latin, and possesses a knowledge of higher mathematics, including engineering and the higher grades of geometry and trigonometry. About a dozen schools have agreed to this, but do you think they can live up to the agreement?

Dr. G. V. I. Brown: Most high schools require that at the end of the first year the student must have had some training in Latin, and most students have had higher mathematics by the end of the same period, so I repeat that the two standards are very similar.

Dr. C. C. Chittenden, Madison: From my own personal knowledge, based on facts, about seventy per cent of the dental colleges of the United States have accepted rule 8, and have agreed in black and white to stand by its requirements. There is a small number of colleges, perhaps a dozen, who have refused to pay any attention to the Examiners' rulings, their plea being that it is impossible to enforce any such rule. If they can enforce the requirements of an examination covering a one year's course in a high school, they can enforce two years as well. The Examiners made that rule last fall simply because it was necessary to do something. Previous to that we had no assurance as to what sort of examinations were given students for matriculation in the different colleges. In some of the announcements it was stated that "A satisfactory examination" or "A good English education" or something of the kind would be required. The matter was left entirely in the hands of the faculties, and I think there is no question in the mind of anyone present but that many of the colleges have grossly abused it. The Examiners have always hoped that there might be some standard established by the colleges, but as nothing satisfactory was accomplished we made a careful move in the matter with the best intentions in the world. Dr. Brophy tells us that his college could comply with this rule if it chose and only fifteen per cent of the students this year would be affected, yet the Chicago college is fighting against accepting such standard. If the reputable schools would back us up in this matter, as they should, there would be no difficulty about enforcing the rule.

FORMALDEHYD DISINFECTION.—Formaldehyd disinfection is carried out in an extremely simple manner in Chicago. The room to be disinfected is sealed and prepared as usual for sulphur disinfection. All its surfaces are exposed as much as possible, cupboard doors opened, clothing hung on lines, mattresses set on end, etc. For every 1,000 cubic feet of space an ordinary cotton bedsheet (3 by 2½ yards) is suspended by one edge from a line stretched across the middle of the room—as many sheets as necessary being used and hung at equal distances. Properly sprinkled, each sheet will carry without dripping 5 ounces of formalin—the 40 per cent solution of formaldehyd. The operator, with a damp cloth tied over his mouth and nose, then rapidly sprinkles each sheet with this amount of formalin by means of a special spray-producer. Commencing at the sheet furthest from the exit, the spraying has to be done expeditiously, as the air becomes irrespirable in about three minutes. The room is closed and left so for not less than five hours.

Digests.

TUBERCULOSIS OF THE UPPER JAW IN LITTLE CHILDREN SIMULATING EMPYEMA OF THE ANTRUM. A. Avellis (*Munch. Med. Woch.*, 1898) describes the typical empyema as a purulent affection of the lining membrane of the antrum. An empyema of the antrum is hardly possible in an infant on account of its development, which is only $\frac{1}{2}$ mm. deep in the fourth month of life. The author considers that the cases published by Power, Moure and Griedenberg were nothing less than a tuberculosis of the marrow tissue in the nasal and palatal process of the upper jaw—in fact, caries. He observed a case himself which had been diagnosed as empyema. An abscess developed below the left eyelid in a six-weeks old boy. This pointed, and small pieces of bone were expelled through the copiously-discharging fistula, while the cheek began to swell. At the same time a purulent and fetid discharge issued from the left nostril. In a hospital to which the patient was admitted granulations, pieces of bone and one carious tooth were removed. The wound healed by first intention, but the nose continued to discharge pus. The author saw him when he was one year and a quarter old. The anterior wall or upper jaw was only slightly swollen; the hard palate, however, markedly bulged into the mouth on the left side. Palpation did not reveal a soft spot. A sound passed into the nose revealed very rough, sharp and denuded portions of bone. A microscopical examination which was held later revealed a few, but distinct tubercle bacilli in the discharge. Avellis states that acute osteomyelitis of the jaw is also frequently mistaken for an empyema of the antrum.

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TO PREVENT SHRINKAGE AFTER EXTRACTION. By S. J. Hayman, L.D.S. Eng. Extraction of a tooth leaves a wound to heal, with loss of structure. Healing must take place; can we prevent the shrinking? In using this method a very little care will dispense with the necessity of a temporary plate or alteration of the permanent one, when the gums have healed. If treated in the manner now suggested the gum will not shrink, but will form beautiful festoons round the facings, and a close fit between gums and facings is certain. We require a perfect model of the surface to be fitted by

the denture, which shall include models of the sockets of the extracted teeth, and then an appliance which shall keep the sockets open at convenience, hours, days or weeks if need be, while the denture is being made.

First an impression is taken in plaster; then the teeth are extracted, the roots filed smooth and a little wax smeared over them so that they may deliver easily, they are put into the impression, which is then poured, and when the cast is obtained the natural teeth are extracted from it, and an accurate copy of the mouth results. A plate is made in vulcanite (about three hours is time enough) which carries points filling the sockets. The patient wears this to keep the sockets open; it does not irritate or hurt. The points may be shortened and made slightly smaller so as to give no pressure. Keeping the sockets open with cotton is very painful; vulcanite is much the better.

For the permanent denture facings having long necks should be fitted as high as possible up the sockets, say $\frac{3}{8}$ of an inch; if only $\frac{1}{8}$ of an inch is embedded the gum will shrink. The finished denture should be worn night and day at first; the gum will settle round the facings. Dentures made in this way do not cause tenderness in wearing; the facings simply hang in the sockets. Of course dentures are often made before the extractions are done, the plaster teeth on the model being cut off and sockets bored, but the plan proposed is more accurate and clean; next day there is no bleeding.

Take two impressions of mouth, one for immediate use with vulcanite, the other for denture. Pour separately, as the natural teeth are required in each.—*Jour. Brit. Dent. Assn., Jan. 1900.*

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PAINS FROM MALOCCLUSION. By John S. Engs, D.D.S., Oakland, Cal. In the fall of 1897 Mr. F., aged forty years, visited me for treatment. Among other things I filled a distal cavity in the right superior second molar with amalgam. Three months later he returned complaining of slight pain in that tooth. As the cavity had been quite deep I suspected pulpitis and made an application to the gum over the tooth, using tincture of iodine, tincture of aconite, and chloroform P. E. The patient was seen the next day and said all was well.

Six weeks later he called again, with recurrence of the trouble. The same treatment was repeated; but the next day the pain re-

turned. I repeatedly touched the gums for several days, but the relief from pain was only temporary. The patient suffered more than before, especially while chewing food and when any pressure was brought to bear on this tooth. With the exception of decided evidence of vitality in the pulp, I had every reason to think it a pronounced case of pericementitis threatening an abscess. I was not quite satisfied with the diagnosis, and suspecting trouble from the position of the tooth, took impressions of both jaws that I might look closer into the articulation.

I then discovered that the superior second molar had been thrown so far forward from its normal position that it almost touched the second bicuspid (both the superior and inferior first molars had long since been extracted). Every closure of the lower jaw brought the coronal surface of the inferior third molar to bear distally upon the upper second molars, causing a severe lateral strain. I ground away the corono-distal surface of the upper second molar, and then forced a wedge of wood between it and the second bicuspid. The patient could then chew without any discomfort. It was evident that the trouble was due to malocclusion.

It seemed proper that the upper second molar should be moved back as nearly as possible to its normal position. This was effected with the aid of cottonwood wedges inserted between it and the second bicuspid. The process was begun May 2 and completed June 8, 1898. A gold band with a nugget of gold soldered to it, large enough to fill the space between the two teeth, was cemented to the molar. More than a year has elapsed since then, and there has been no recurrence of the trouble.—*International, Dec. 1899.*

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REPAIRING RUBBER PLATES. By Rufus G. Beale, D.D.S., Philadelphia. To render the repairing of a rubber plate satisfactory it is necessary to previously prepare a guide. To do this cement the old teeth to the plate, and if the plate be fractured unite with rosin and wax cement the broken sections. Pour plaster into the plate to make a cast; then cover the lingual surface of the plate and cutting and grinding surfaces of the teeth with plaster, thus making a plaster bite or articulator.

If a single tooth placed between natural ones becomes broken, or if the broken portion of the plate is missing, it is usually necessary to take an impression of the space and the adjoining teeth, or an

impression of the missing portion of the plate, which impression should be taken with the plate in the mouth.

When a plain tooth or a sectional block is broken, and the rubber back of the pins is moderately thick, heat the tooth or block and carefully remove it from the plate. Then enlarge and undercut the pin holes with an engine bur. Scrape the portion of the plate immediately beneath the teeth to make the new rubber adhere. In placing the new plain tooth or the sectional block it may at times be necessary to unite the pin holes, and groove the undercut to accommodate the pins after the grinding and fitting.

The holes or grooves in the plate should be slightly more than filled with rubber, previously softened, and a thin layer pressed over the old rubber immediately beneath the porcelain teeth. Then heat the teeth and force into position, holding them firmly until the rubber is cool. The excess of rubber should be trimmed off with a warm spatula. Invest the case in the flask and vulcanize. This will make a strong and invisible repair.

In case the rubber forming the portion of the plate back of the porcelain teeth is thin, it should be removed and so filed as to make a dovetail space. Holes should be drilled at this point to retain the teeth, and filled up with soft rubber, a thin layer of which should also be placed over the old rubber beneath the porcelain teeth, as before described. Then heat the teeth and press firmly into place.

After this pack around the pins with soft rubber, using enough to fill the space a little more than full. Trim away the surplus and smooth the surface with a hot spatula. Flask the case and vulcanize. In flasking place the sections of the flask together and fill with plaster mixed to a thin consistence. Place plaster on the inner portion of the plate, as though making a cast, then imbed the plate with the soft plaster upon it in the filled sections of the flask. Jolt the flask to exclude the air, and allow the plaster to come in contact with every portion of the plate.

Where a plate is broken into two pieces, after making the guide, remove the teeth from each side of the break, or if necessary from over the break. The broken edges of the plate should be filed, so that the new rubber between will be a little more than one-eighth of an inch in width. About a quarter of an inch from their new edges make with a sharp chisel a clean cut about a line in depth, running parallel with the edges and extending the length of the

fracture. Then bevel this space from the chisel line, terminating in a knife edge at the filed portion of plate. A number of holes should be drilled through the beveled portion of the plate, which holes should be countersunk on both sides.

The object of making a clean cut, a line in depth parallel with the filed edges, and cutting in and rounding off the rubber at the plate line, is to allow the new rubber to end in a thick and relatively well-defined edge, and restore the posterior portion of the plate in one thickness of rubber; thus preventing curling up of the rubber in polishing, which is certain to occur when the new rubber overlaps the old.

When these details have been completed, place the sections of the plate on the cast, and hold in position by the aid of the thumb and finger, while packing the rubber on the labial or buccal surface of the plate, after which the sections should be made fast to the cast by retaining them with rosin and wax cement at the circumference of the plate. Pack the rubber by filling up the holes on the palatal portion of the plate with small particles of softened rubber, and fasten in place with a warm spatula; after which cut a piece of rubber large enough to fill in the open space between the plate edges and press well into place, being sure to have a sufficient quantity to trim up well in the polishing process. Then seal the edges of the new rubber with a warm spatula, and thoroughly cover the entire palatal portion of the plate and the cutting and grinding surfaces of the teeth with freshly mixed plaster, which should be allowed to harden to guard against any possible displacement of the sections while flasking. Flask the case as before described, on the cast, but with the plaster support. Do not open until after the vulcanization of the rubber.

A large amount of wax and rosin cement should not be used at the circumference of the plate to retain the sections; all should be removed previous to flasking, excepting that which is absolutely necessary for holding plate to cast. A thin line of cement at this part of plate will not affect the fit of denture in any way after the vulcanizing process.

In the method above described the rubber can, with care, be worked with a warm spatula almost as easily as wax, and the plan does away with packing the case in the flask after the usual manner, and the attendant possibility of working an excess of rubber

under the palatal portion of the plate when closing the flask, thus impairing the fit of the plate. This method of preparing the plate and packing the rubber also embraces cases of repairs of lower plates.

When the rubber cannot be placed in position with the teeth, it is necessary after the dovetails and holes have been made to prepare the case in wax. Invest in the lower section of the flask, pack, vulcanize and finish after the usual manner.

The above described method of repairing rubber work will be found time-saving and will insure a nonporous result. My object in describing it is not so much to call attention to the packing of the rubber, as to the mode of preparing the plate for repairing; it is a method which after finishing, produces well-defined lines and makes an extremely strong and neat repair. It has been used by me for more than twelve years with entire satisfaction.—*Brief, Dec. 1899.*

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NEURALGIA FROM TOOTH IMPACTION. By George E. Johnson, D.D.S., Fort Wayne, Ind. Read before Northern Indiana Dental Association, Aug. 31, 1899. The patient was Dr. J. E. Waugh of Angola. The doctor had suffered from neuralgia for a period of twelve years at irregular intervals, and especially when undergoing attacks of coryza. March 21, 1899, he was seized with an attack. It had every appearance of coryza or rhinitis, which developed into severe pains through the left side of the face, and meatus auditorius externus, membranes of pharynx. Swallowing caused pain and a crackling noise, caused by compression and release of the tube. The left nostril was much swollen with pus, covering membrane between the middle and inferior turbinated crest. Inferior turbinate not much affected. Middle turbinate "waterlogged" and chemotic, showing venous circulation engorged. At the margin of left zygoma pain very severe upon pressure.

March 26, 1899, I trephined the right superior tuberosity and explored for the missing tooth. Upon penetrating the tuberosity my instrument dropped into a space surrounding the crown of tooth, and my first impression was that I had penetrated the antrum, and it seemed to confirm my diagnosis of mucous engorgement, as the mucus oozed out all around the trephine; but further exploration revealed the presence of the tooth crown without any communication with the antrum. Next, with a tubular knife in the engine I made an opening a little larger than the crown and burred away the

process to get free access to tooth. Very little hemorrhage followed, and it was very easily controlled by the use of pyrozone. I inserted a No. 3 elevator or "stump extractor" to a depth of five-eighths of an inch between the second molar and the impacted tooth, using the alveolar process over the distal root as a fulcrum, and giving the elevator a slight forward and upward rotary movement the imbedded tooth was quickly dislodged.

March 30, 1899. Patient much improved in appearance and slept well last night; however, this morning, upon rising, pain began at lower border of zygomatic arch and condyloid process. Copious discharge of mucus from the nose. Membrani tympani is not nearly so much inflamed and not bulged; cracking in the ear not so severe.

April 1, 1899. Slept well and had no pain; partook of full breakfast; then pain began along lower margin of zygomatic arch; local tenderness at two points still well marked, viz., junction zygomatic with the molar process and over root of second left upper molar well back over tuberosity; lumen of left nostril open; chemosis of middle turbinate with free muco-purulent discharge; no swelling of face.

April 2, 1899, 2 p. m. The writer trephined the upper left tuberosity over site of third molar, reaching a depth of three-eighths of an inch before coming in contact with the crown of impacted tooth. I made a free opening and removed the tooth with a pod elevator. Finding one tooth lying transversely, you see they could not be extracted with a forcep. The roots of both teeth were favorable for their removal, and by planting the elevator upon the mesial surface and using for a fulcrum the alveolar process over the distal root of the second molar, and giving the elevator a slight rotary movement upward and forward, the tooth was removed very quickly.

My first diagnosis was that the teeth were either nondeveloped and the trouble was that of mucous engorgement of the antrum of Highmore, or that the roots penetrated the antrum, but upon making a very careful exploration of the sockets I found no opening.

Pressure in the sockets in the region of the posterior dental canals in the tuberosity produced severe pain, proving conclusively that the neuralgia and other concomitant symptoms were produced by pressure of the malposed third molars against the dental nerves at the posterior dental foramina of the tuberosities.

No swelling or soreness followed the operations, and on April 4, 1899, the pain and other symptoms passed away, but the patient

suffered considerable pain throughout the head, showing degeneration and consequent functional disturbance of nerve tissue. The ears felt more clear and less numb and examination showed the membranes to be free of redness. Catheterization of the eustachian tube showed it to be open and free. The nose was free of discharge and the middle and superior turbinates quite pale and only slightly chemotic.

April 27, 1899. No pain in the ear since third day after operation, but left middle turbinate had the appearance of mucous polypus. To-day patient could speak for himself.

There is another sort of impaction of lower third molar, which is of frequent occurrence and not difficult of diagnosis, but is the most difficult operation we are called upon to perform. My practice is to dissect the tissues of the superior constrictor and buccinator from the alveolar process on the lingual surface down nearly to the mylohyoid groove, and then take a sharp fissure bur and cut two grooves through the cortical tissue or casing of the process in line parallel with the direction of the roots and a little larger or broader than the greatest diameter (antero-posterior) that the roots are supposed to occupy. Next with a cone-pointed fissure bur make a groove down through the process close to the cervico-buccal surface, parallel with the buccal surface and toward the apex of the roots, of sufficient depth to insert the No. 3 elevator or "stump extractor," which is to be used as a lever in tipping the tooth towards the pharynx, with the process intact. With a curved bistuary or scalpel any adhering soft tissue can be dissected from the fragment, which can be easily removed with a pair of spicula or lower root forceps. The soft tissue folds into the wound without leaving any evil or undesirable results.—*Indiana Journal, Dec. 1899.*

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SHOULD PULPS GENERALLY BE DEVITALIZED IN CONNECTION WITH CROWN AND BRIDGE WORK? By S. H. Guilford, D.D.S., Philadelphia. At the recent annual convention of the National School of Dental Technics an essayist remarked that he considered it advisable to devitalize the pulp of each tooth that was to be covered by a crown or bridge. Another speaker in discussing the paper said that he made it a rule to devitalize teeth under such conditions. Emboldened by this support the essayist later remarked that he believed it would soon be con-

sidered next to criminal not to devitalize any tooth which was to be covered by a crown. Such bold assertions going unchallenged in a large gathering of college teachers and workers suggested the thought that probably many of them agreed with the views set forth. The question naturally arises: "Are there many practitioners who pursue this heroic practice, and if so, upon what grounds is it based?"

As both speakers quoted were from western states, their views may possibly reflect the common practice in their section, but if it does it certainly does not coincide with eastern custom. Undoubtedly the conclusions of the speakers were based upon their own experiences in practice, but what those experiences were was not stated. A living tooth covered with a well-fitting artificial crown, cemented in place, is supposed to be unusually well protected against both thermal changes and bacterial influences, and such being the case, it is difficult to understand what cause there would be for preliminary pulp devitalization. If pulps were liable to die under crowns, it would certainly seem advisable to devitalize them in advance and by thorough surgical and antiseptic treatment forestall any possible danger of abscess or periosteal trouble; but are they thus liable?

We can conceive of but two conditions under which pulps might die when covered with a metal crown. One is, decay occurring about the cervix through ill-fitting of the crown; and the other, thermal changes transmitted through a body of dentin too slight in extent to protect the enclosed pulp. The latter can occur only in cases where the crown has been too liberally denuded of enamel and dentin. For this there is certainly no necessity. A crown must be reduced in size to receive a properly-made hollow metal crown, and through lack of such necessary reduction, many of the failures and most of the disgraces of crown work occur, but excessive mutilation of the natural crown is hardly less reprehensible, because it not only entails great suffering upon the patient during the operation, but also leaves the pulp inadequately protected.

When a tooth which is to serve as an abutment for a crown is much tipped in position, many practitioners heedlessly cut away the tipping portion, so as to admit of the bridge being placed in position. In so doing much good tooth-structure is sacrificed and the pulp is brought relatively nearer the surface, thus endangering its

vitality through thermal changes. Why not avoid this by correcting the malposition of the tooth as we do in regulating? The tipping tooth may by a suitable application of force be brought into an upright position, and the bridge when inserted will retain it there. In this way all excessive cutting may be avoided and the life of the pulp more certainly assured.

It seems strange that the death of pulps under crowns should be the frequent experience of some practitioners and not of others. The writer cannot recall a single instance of this character in many years' experience in crown and bridge work.

We fear that the value of a living pulp is less appreciated by some than it was in former years. Many writers speak of devitalization as unconcernedly as they would of the placing of a filling or the adjustment of a crown; but who is there that considers a tooth without a pulp equal in durability to one with a pulp? True, after middle life the function of the pulp is less important than in earlier years, but those who wear crowns or bridges are not all old. Fully one-half are young people, to whom the matter of living pulps is of the utmost importance. The writer would not willingly suffer the loss of a pulp for any pecuniary consideration, and feeling thus, he should consider it almost a crime to inflict a similar loss upon any patient. It is well to remember that alveolar abscesses are not found in connection with living teeth, but often are with devitalized ones. Besides, when the time comes for the mortal body to return to the dust, we would prefer to have it go intact rather than have it sent before on the installment plan.—*Stomatologist, Jan. 1900.*

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NECROSIS IN BONE AND ITS TREATMENT BY THE ORGANIZED BLOOD CLOT. By C. B. Parker, M.D., Cleveland. Necrosis is not a disease. It is the termination or sequel of disease. In its strict meaning the word is synonymous with gangrene, mortification or sphacelation. By our American and English authors, as well as by common usage, the term necrosis has come to mean death of a visible portion of bone; while to the same condition occurring in the soft parts the terms gangrene, mortification or sphacelation are applied.

Necrosis of bone and gangrene of the soft parts take place in the same manner, and result from the same causes, and there is no reason why they should receive different designations, simply because

they occur in different anatomical structures. But these terms have become so intimately associated in the medical mind with these very anatomical structures, that, for the present at least, there is no hope of any change. In our day death of bone will never be described as gangrene, and moist gangrene will never be described as necrosis. Recent German writers have made a very useful distinction between the terms necrosis and gangrene by which we may retain them both. According to this distinction, the term necrosis is applied to any tissue in which the circulation, nutrition and function have ceased, whether this accident occurs in the osseous or soft tissues. The term gangrene is to be applied when saphrophytic bacteria invade the necrosed tissue and give rise to decomposition. Under this view necrosis occurs everywhere as a physiological process in the death of the individual cells, in the retrograde processes of nutrition.

In normal metabolism the building up equals the tearing down, i. e., regeneration, and in the earlier periods of life, even more. That is, growth. If the number of necrotic cells are greatly increased for any cause, without a corresponding increase of the regenerated cells, we have a numerical atrophy, i. e., a cellular necrosis. Or all the cells in a visible part, be it in osseous or in soft tissues, may die. We then have a total necrosis. Thus, broad as the field included under the subject of necrosis is, it will be my purpose to take up the subject only so far as it occurs in bone, bearing in mind, however, the wider significance given to the term in modern medical parlance.

Bone serves not only as a supporting framework for muscles and organs; it also has important physiological functions. In the red marrow, during extra-uterine life, both red and white blood corpuscles are formed. The red ones, according to Bizozero, being formed from erythroblasts within the blood-vessels of the red marrow, and the colorless ones from lucoblasts, in the extra vascular parts of the red marrow. After copious hemorrhage, when the animal forms a larger number of corpuscles than usual, as if it were striving to make up the deficiency, the number of nucleated red-blood corpuscles in the red-blood-forming marrow is greatly increased, and even parts of what was previously yellow marrow appear somewhat reddish.

In view of these important physiological functions of bone marrow, we need not wonder that the pathological changes in these tissues are likewise important and striking, and furthermore, that

they are identical with those that take place in the soft parts under similar conditions.

- Inflammation in the soft parts equals . . Osteitis in bone.
- Organization in the soft parts equals . . Sclerosis in bone.
- Abscess in the soft parts equals. . . . Abscess in bone.
- Ulceration in the soft parts equals. . . . Caries in bone.
- Gangrene in the soft parts equals. . . . Necrosis in bone.

Mr. Savory of London has pointed out, and Dr. Roswell Park has emphasized, the remarkable resemblance in anatomical structure existing between bone and lung, and the identity in course, accidents and termination of the same disease occurring in them. For example, tuberculosis. Thus it has been shown that cancellous bone much resembles the parenchyma of lung tissue. Both are eminently spongy. The pleura bears much the same anatomical resemblance and physiological relation to the lung that the synovialis does to the bone end; just as pleuritis is set up in phthisis, so is synovitis in tubercular osteitis; just as adhesions tend to form in the pleural cavity, so do they in the synovial cavities also; just as obliteration of internal veins causes prominence of subcutaneous veins about the chest, so are the superficial veins enlarged about a tumor albus; just as a tubercular pleuritis may lead to an empyema, with all its disastrous consequences, so may a tubercular synovitis lead to a pyarthrosis (empyema of the joint), with fungus ulceration and the like. In almost every feature, then, is the variable progress and effect of tubercle in bone and lung alike. Furthermore, as in the larger number of cases the tubercular affection seems to locate by preference in the extremities of the lungs, i. e., the apices, so we find that in bones it is most common in the vicinity of joint ends.

This comparative similarity between two such apparently different tissues as bone and lung serves only to emphasize the identity of pathological processes in osseous and soft structures. It is greatly to be regretted that we have no common nomenclature to indicate these identical processes. The contrasts which seem to exist between these structures under pathological conditions are really differences in symptoms, and are due chiefly to the peculiar structure of bone. Bone contains a large proportion of earthy matter, which is perfectly unyielding, inelastic, and so far as pathological changes originating in it, perfectly inert matter. Pain in all bone affections is more severe than in similar affections of equal era in the soft

parts, and swelling, an ever present sign of inflammation in the soft parts, is often absent in the centrally located bone diseases. These conditions are entirely due to the unyielding character of the earthy matter in bone.

The chief causes of bone necrosis are: First, mechanical, such as trauma and embolus, not containing bacteria; second, chemical produced by such agents as phosphorus and mercury; third, necrosis due to the presence of bacteria. Mechanical causes of bone necrosis include traumatism, especially comminuted fractures and other injuries where the bone is divested of its periosteum over wide areas or its vitality otherwise destroyed. I am rather doubtful if the death of the bone in such cases is really due to being deprived of its periosteum. In simple comminuted fractures, no doubt, many fragments become denuded of their periosteum, but necrosis rarely follows. It is when germs enter and suppuration takes place, as sometimes occurs in compound fractures, that necrosis usually results. Necrosis may also be produced when a vessel supplying a given area of bone becomes closed by an embolus, i. e., anemia necrosis. If this embolus does not contain bacteria, the death of the bone is due entirely to the mechanical obstruction.

Chemical Necrosis.—This form occurs in working people exposed to the fumes of phosphorus or mercury in factories. By careful inspection and filling of the cavities of the teeth, by great cleanliness, and the use of amorphous phosphorus, the number of cases have been greatly diminished. The disease is often chronic and has a tendency to destroy the new bone as it forms, and thus the maintenance of the integrity and usefulness of the bone is often difficult.

When for any cause a portion of bone becomes necrosed, a process of separation is at once begun to remove it from the living tissue; softening, liquefaction and absorption of the earthy material. Granulations spring up between the living and the dead bone, the vessels in the granulation tissue absorb quantities of the fluid produced, and as the circulation has been arrested at different points in the different vessels, the granulations will form an irregular line. Delicate finger-like granulations extend into the spaces formed in the process of absorption. As long as any communication exists between the living and the dying fragment, this process of absorption goes on. Thus the sequestrum, as the dead piece is called, when completely separated from the living bone, is far smaller, and

of a different shape oftentimes, from that of the original area involved. The slower this process of separation, the more complete the process of absorption. Owing to the irritation produced while this process is going on, new bone formation is set up by the osteoblastic cells in the periosteum, as well as by the leucocytes which crowd into the area of irritation. This process of new bone formation is often so accurate as to completely envelop the dead fragment, thus serving to restore the integrity of the bone. The discharges find an exit through cloacæ or openings in the new bone formation and break through the periosteum. After burrowing for some distance along the sheaths of neighboring muscles, and always in the direction of gravity, they finally appear upon the surface. The sinus thus formed is lined with a thick wall of granulation and discharges creamy non-irritating pus.

Diagnosis.—The presence of a sinus and detection of dead bone is in many cases easy, and conclusive evidence of necrosis. That the dead bone is separate and movable is not always so readily determined. The sequestrum, though entirely separated from the living bone, may be so firmly imbedded in the involucrum that it cannot move when pressed upon by the probe. In any case the length of time the condition has existed must determine this question, and if six or more months have elapsed it is fair to presume that separation has taken place, and a successful attempt to remove the fragments can be made; but it is the earlier stages of inflammation, before the destruction has gone so far as to cause the later death of the bone, that the diagnosis should be made. The cases of acute septic osteoperiostitis and osteomyelitis are not common, and an early diagnosis is not always made. Three such cases have come into my hands recently, but only after some ten or twenty days had elapsed, and the signs of fluctuation were distinct and the damage to the bone had already been done. These cases were in the hands of good general practitioners and were regarded as rheumatism. But rheumatism never involves a single large joint, except gonorrheal rheumatism, and this is really a sepsis and is often symmetrical. The subjects of acute bone inflammation are usually children or young adults, with a history of a recent attack of some zymotic disease. Such a history, with severe symptoms from the onset, should lead the surgeon to suspect the true condition. The localization of the pain in one of the bones of the extremity, and this

pain not yielding to the prompt, active, antiphlogistic treatment of rest, alteratives and cathartics, within two, or at most four days, I believe it is the duty of the surgeon to place the patient under an anesthetic and explore the seat of pain, even to penetrating the bone.

Chemistry seems about to furnish a valuable means of diagnosis in these cases. It is well known that in the conversion of albumen into peptone numerous intermediary products are formed, that is, albumoses. That bacteria, in their life activities, develop similar albumoses, and it is believed that the albumose formed by many varieties of bacteria is peculiar to each, though the chemist has yet found no perfect method of separating and identifying them. Where separation is going on in the body certain peptones have been found in the urine. Their presence is regarded as a sign of suppuration, and the localized pain in the bone would give a sufficient indication for incision.

Treatment.—There is no advantage to be expected from internal medication in the treatment of necrosis beyond its tonic effect. We have no means of liquefying the sequestrum by remedies taken internally or applied locally, and the only relief is by surgical means. The treatment of phosphorus necrosis is special and demands separate notice. The extensive manufacture of matches at Akron, O., has given the surgeons of the city unusual opportunities to observe the clinical characters of this disease. Dr. Jacobs has kindly furnished me with an outline of his practice. After using the usual remedies for periostitis without arresting the disease, it is his practice, especially when the disease involves the lower jaw, to remove the carious teeth as early as possible, and cut the alveolar process down to the body of the bone. He then makes a furrow for drainage into the body of the bone over the whole extent of the diseased surface. This gives sufficient drainage to protect the involucrum from the destruction peculiar to this form of necrosis. The parts are to be kept clean by antiseptic washing and dressing. By this method the sequestrum is fairly loosened in time, and may be removed and the confirmation of the jaw maintained. Early operations for the removal of the sequestrum always give greater deformity than those treated as above outlined. Indeed, he says: "I do not look for much deformity in these cases, while after my earlier operations I seldom had any kind of a useful substitute for a jaw." In the upper jaw, where the drainage is

natural, he simply cuts back to the normal bone, clears out the cavity, keeps it dressed as nearly antiseptically as possible, and they recover without much loss of bony tissue.

The usual method of treatment has been to make an incision down to the bone, strip back the periosteum, chisel through the involucrum, expose the sequestrum and remove it. Scrape out the cavity and pack with iodoform gauze, and permit the wound to heal by granulation. The treatment by the organized moist blood clot was first suggested by Schade, the accomplished bone surgeon, now at Halle. By this method the cavity in the bone and all the sinuses leading therefrom are to be rendered completely aseptic, and this space to be filled by a blood clot which, protected by suitable dressing, becomes organized into fibrous and osseous tissue. This method will not succeed in all cases, as in some the sinuses are so numerous and so placed that it will be impossible to render them aseptic. The most favorable cases are those in which the necrosis occurs in the subcutaneous bones, such as the tibia and ulna, where the sinuses are short, and where possibly they may all be included in the line of incision. After removal of sequestrum the most painstaking scraping with Volkman's spoons should be made and the cavity thoroughly cleaned out; next the sinuses, each in turn to be scraped, until the last fragment of lining membrane has been removed. Peroxid of hydrogen full strength should be used until all foaming ceases upon a reapplication, or bichlorid solution 1-1000 or 1-2000 freely flushed over all the surfaces.

The new remedy, formaldehyd or formalin, I have found a most useful antiseptic in 1 per cent solution. In this dilution it is an ideal bactericide, is nonirritating and has no unpleasant odor. Even in one-half of 1 per cent solution it is more effective as a germicide than carbolic 1 to 40. It preserves tissue equal to alcohol, does not rust instruments, and is an excellent solution in which to preserve them during operation. So far as my experience goes with this remedy, I regard it as an ideal antiseptic. In bone diseases it has also one special marked advantage. The vapors arising from its application in a bone cavity are fully as potent in destroying germs as the solution. The advantage is obvious, as the vapors constantly rising have a tendency to destroy any germs remaining or developing later in the field of operation.

Lastly sterilized water to remove previous solutions; the soft parts

brought into apposition and united with silkworm gut sutures. Over the united wound a sterilized strip of Lister protective, sterilized gauze, absorbent cotton, rubber tissue, and an oakum pad, in the order named. It is my custom to immobilize the part, applying either a splint or some immovable dressing, such as starch, glass or plaster, and where practicable include the joint on either side of the affected part. This dressing is to remain in place two or three weeks, unless a rise of temperature and constitutional disturbance indicates that the case is not progressing favorably, when the dressings must be removed and the cause sought for, and removed if possible.

My first case was one of necrosis of the ulna in a woman. The operation was performed in the manner described, and a very delicate sequestrum, $3\frac{3}{4}$ inches in length, removed; the wound dressed in the manner outlined. There was no rise of temperature or other disturbance, and in three weeks, when the dressings were removed, the wound was found solidly healed. By the open method the final result would have been equally as good, but after a much longer time and with more suffering. This method is especially to be recommended in the case of children. The fear and the pain of repeated dressings is obviated, and much actual suffering, as well as mental anguish, saved to the patient.

In closing, I would suggest that this method may be of still wider application, especially in operations for tuberculosis of bone. We know that true suppuration does not readily occur in the caseous masses of bone tuberculosis. We are all familiar with the contents of cold abscess; that this fluid is the result of a tubercular disease in the bone, and that it remains for months and even years within the body without becoming infected with the germs of true suppuration. The same is true of many tubercular foci found in bone; though they contain tubercle bacilli in abundance, the bacteria of suppuration are rarely found. In view of these facts, may we not expect good results in such cases from this method of healing by the organized blood clot?—*Cleveland Medical Gazette*.

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ORTHOFORM AND NIRVANIN. By William Rotenberger, Munich. For about a year orthoform has been used successfully in the entire range of medical science, and I was induced to try it. The brilliant results which I achieved with the orthoform induces me

to group the cases in which the orthoform has become during my experiments entirely indispensable.

First. In cases of violent pains coming from an inflamed pulp lying free the effect is instantaneous, the pain being at once relieved. It is not necessary to apply carbolic acid, as the orthoform itself has a strongly antiseptic effect, according to the investigation of Mosse; and according to Fink, it is best antiseptic in powder form. Orthoform is absolutely without smell or taste, in the application of which no precaution of any kind need be observed, as it has no effect upon intact mucous membrane, unlike carbolic acid.

Second. In pains after the extraction of teeth and roots, cases where chloroform, opium, camphor, tincture of aconite, cocain, etc., had no effect. I therefore apply orthoform after every extraction, and completely fill the wounds with the pain-allaying antiseptic, even when through the extraction of the entire set of teeth numerous wounds are present. This can be done without fear, as the orthoform is entirely non-poisonous. According to the reports of Neumayer, Hecker, Klaussner and others, patients have been given 10 grams or more at one time of the orthoform *per os* and 5-6 krg. has been applied externally upon the surface and its use continued for several months.

Third. In the treatment of buccal ulcers, burns, injuries of the gums and teeth, orthoform need only be used in order to at once stop the pain.

Fourth. For the filling of root-channels, where I apply orthoform and asbestos. But my experiences in this direction are too limited to enable me to submit now a definite opinion concerning this method. Up to the present time iodoform (a substance in which, as is generally known, bacteria develop quickly) has been used for the same purpose. This substance is offensive on account of its taste and smell. Orthoform suppresses the growth of the bacteria entirely and is inodorous.

Fifth. When the excavating causes great pain I dry the cavities well, lay in orthoform and close with wax. After one or two days the cavity may be prepared painlessly, or at least with very much lessened sensibility.

Of late the inventors of orthoform, Prof. Einhorn and Dr. Heinz, have been successful in finding a soluble orthoform, which is brought to our notice under the name of "nirvanin." It fills all the re-

quirements of a local anesthetic. Nirvanin has the same anesthetic effect as cocain, and is to be applied similarly, but it also possesses great advantages over cocain, and all such remedies used by the dentist. It is absolutely harmless, causes no condition of excitement, respiratory or heart complications. The patient can arise at once after the extraction. Anxiety, dizziness, vomiting, fainting spells, which occur so often when cocain is applied, are almost entirely absent.

For about three months I have made trials with nirvanin in solutions of one, two and five per cent. My observations have brought me to the temporary conclusion that a solution of five per cent is the most certain in its effects for our purpose. Out of 164 extractions 155 were painless. The nine cases in which nirvanin has been used in which it failed may have been the result of unfavorable circumstances. An operation of this kind may be a failure, as it is extremely difficult to inject a sufficient quantity, especially about the lower molars.

I slowly prick into the gingiva, and exercising a uniform pressure upon the piston of the syringe, go forward to the periosteum and empty one-half of the syringe; the other half I inject on the inner side of the gum adjacent to the tooth. After having waited three to five minutes I extract the tooth painlessly. One injection is usually sufficient to make anesthetic several neighboring teeth, and I have been able to extract twenty-two teeth at one sitting with one injection, without any unpleasant aftereffects. I have used nirvanin with best results also with children without any bad effect.

The five per cent nirvanin solution may be sterilized by heat without becoming decomposed in the least. The solutions of nirvanin can therefore be kept for weeks without decomposing. The sterilizing of a five per cent solution is not absolutely necessary, as nirvanin itself has germicidal effects, and a one per cent solution prevents growths of bacteria, decay and fermentation. Nirvanin causes no edema, or at least seldom.—*German Dental Weekly, No. 36.*

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QUALITATIVE FACTOR IN THE PRELIMINARY DENTAL EDUCATIONAL REQUIREMENT. By Edward C. Kirk, D.D.S., Philadelphia. Read before Central Dental Association of Northern New Jersey, November, 1899. It may be safely asserted that no one thing so surely indicates the rate of advancement in

dentistry as the demand of its votaries for higher standards of educational qualification. In all directions the thought finds emphatic expression that in order to fill out to its full dimensions the popular ideal, the dental practitioner must hereafter possess an educational equipment far in advance of that heretofore considered sufficient. Originating within the professional ranks, the cry for higher standards has awakened a sympathetic echo in public opinion, and it is evident that the demand must be adequately met.

When it is considered that our educational system had to be created; that but few if any precedents were available; that the curriculum was in the first place an uncertain quantify and ever afterward a constantly changing one; that it had to be weeded out and added to as the conditions of professional progress necessitated these changes, it will be readily seen why the thought of dental educators has been mostly concerned with the technical side of the problem, rather than with the character of the material to which this educational system was to be applied.

Gradually, however, the fact has obtruded itself, that in order to successfully pass through the details of the curriculum demanded in representative dental schools, a certain degree of preliminary education is essential in order that the dental student may absorb and profit by his professional instruction. Hence the establishment of a standard of preliminary educational requirement and the progressive increase of that requirement toward the point where it logically belongs, namely, at the termination of the public high school course. I am well aware that a standard of preliminary education equivalent to high school graduation has not as yet been made generally obligatory, but that it will in the near future attain that point I do not for a moment doubt.

It is not within the purpose of this paper to discuss at length the desirability of, or objections to such a standard as representing the amount of educational attainment which should be required of every student entering upon the study of dentistry. To those who have carefully examined the problem with minds unprejudiced the reasonableness and propriety of exacting the equivalent of a high school education as the foundation upon which to build the superstructure of professional training, must be self-evident.

There is, however, a phase of the subject which it seems pertinent that we should investigate, viz.: the nature of the training which

furnishes the best basis for professional study in dentistry, and what kind of a high school course offers such a basis. An inquiry into this matter is opportune at this time because the adoption of the high school standard is an accomplished fact in New York and New Jersey, and I am perhaps betraying no confidences when I say that Pennsylvania is incurably inoculated with the same idea. With the precedent so well established other states will surely follow if only in self-defense. The inquiry is pertinent also for the reason that a high school standard is by no means a uniform standard, and therefore not all high schools fit a student as he should be fitted for taking up professional study.

Preliminary Qualifications. Those who have concerned themselves with the problem of educating students in dentistry have quickly realized the need for a proper foundation upon which to build; this need has been variously estimated or apprehended; but all observers have agreed that certain qualities, natural or acquired, were necessary in the student who was later on to become a successful practitioner; successful in the sense that he possessed those qualities of mind and hand which enabled him to correctly function as an exponent of his craft.

We are probably in agreement that the dentist must possess manual skill, i. e., the power to put into practical execution the suggestions of the brain in practicing the art of our calling. This implies necessarily the ability to reason accurately and logically; but the broadening of our specialty has created the necessity for a much more extended use of accurate reasoning and logical thinking than the mere art side of it ever did or can call forth.

The development of the field of dental and oral investigation in its relation to the study of the entire human system is rapidly placing dentistry in close analogy with the other departments of the great healing art and requiring at least an equal educational equipment of its practitioners. This educational equipment at its best, and it can only be so considered, demands a training which will develop the reasoning powers to the maximum limit, and make accurate observation and thinking the normal mental habit.

Is it the function of the dental school to furnish the training that will attain this much to be desired habit of mind? The very fact that we now demand a reasonably high standard of preliminary training furnishes the evidence of our belief that the dental curricu-

lum is a special system of training which at the utmost can be expected only to solidify and round out the educational result of the preliminary course of instruction. We must look then to the public school course or its equivalent to deliver to the dental colleges a product suitable for conversion into professional timber.

We have demanded a high preliminary standard and are, generally speaking, attaining our desire. Having achieved that important point, let us now inquire as to the quality of the standard, for surely in demanding a given quantity of preliminary training, it is implied that it shall be adapted to our purposes. A system of education to be of greatest use to the dental student must develop in him as nearly as possible those qualities which are to serve him best as a practitioner. This generalization is, I trust, broad enough to include those elements which are necessary to him as a well educated member of society apart from his technical professional training. For our present purposes we will agree that the high school course is sufficient to fit a man as an acceptable member of society. Our inquiry deals not with that question, but rather with the adaptability of the common school course as a training ground preliminary to the dental curriculum.

During three years of intimate connection with educational work in dentistry and a constant study of the educational problem in all its aspects throughout that period, two observations are presented as the outgrowth of that experience: first, that the gradual increase of preliminary requirements has not diminished the proportion of failures in course of the dental curriculum; second, that the students who as a class or group show the best general average of work are those whose preliminary education was obtained in the manual training schools. In asking you to consider the significance of these two statements, I desire in the first place that you will carefully note these observations are not offered as a criticism upon the high school standard as a measure of its quantity or degree of educational attainment, and second, that I am fully aware that the length of time as based is inadequate, as is also the relative numbers of students under observation, as the basis for forming a definite conclusion regarding the value of the preliminary standard. The observation, as stated, is therefore to be taken only as an indication of the lines upon which we may possibly suggest modifications of the standard which will best adapt it to our needs.

Perhaps no end of education is so important to the individual as its power to develop in him correct methods of reasoning and thinking. Any teacher who has experienced the difficulty of training students to intelligently reason about the problems which form the basis of his course of study will admit that the lack of that quality in the mind of the student is the most serious obstacle to his progress. To the student of dentistry the ability to think and reason correctly is a *sine qua non*, and unless the habit has been to a considerable degree established by his preliminary training, the dental course cannot partially create it. This principle applies to technical manual skill as broadly as it does to abstract scientific study, for unless the student reasons with precision he cannot execute with precision. How, then, is this essential mental characteristic to be secured for the dental student if, as will be admitted, I think, the professional curriculum cannot wholly supply it? Manifestly, we must see to it that the preliminary training of the student has, so far as may be possible, developed the requisite qualifications for entering upon the dental course, and endeavor to shape the requirements of our high school standard with reference to that end.

True Meaning and Value of Manual Training. I have referred to the value of this course as a preliminary to dental study. Nine years ago I presented to the First District Dental Society of New York some observations upon the "Manual Training Idea as a Factor in Dental Education," and I there endeavored to show the importance of that principle as a means of mental cultivation. Since that time not only has the manual training system become a regular factor in the dental curriculum, but as an educational means its value has been more generally recognized by the extensive introduction of that system into the common schools. There has been, I fear, however, a marked tendency in the practical application of the manual training method to subordinate ends to means; that is to say, the great value of the system as a method of *mind* training has been overlooked, and the cultivation of *manual skill* made the objective feature of the system. This is exactly the reverse of what the originators of the system intended, rendering its application not only wasteful of time and energy, but defeating its purpose as an educational method.

Let us take a specific case as illustrative of the two points of view under consideration: An elementary exercise commonly required in

the course of instruction in our manual training schools is that an iron casting roughly approximating a cube in form shall be dressed into shape by the student so that when finished it shall be a perfect cube as nearly as it may be possible to attain that result by the method employed. What is the educational purpose of such a requirement? Certainly not that the student may thereafter have the ability to make by hand cubes with mathematical precision of surface and angle, for if the thing produced were the objective feature of the process it would be, commercially speaking, more economical to produce cubes by special machinery, and the product would be not only cheaper but the output larger and on the whole better.

The objective feature of the exercise is then its educational value for the student who performs it. And, as I take it, the measure of its value is its efficiency as a means for compelling him to think and reason with precision and accuracy. Incidentally he develops a certain degree of manual skill, which is the physical analogue of the mental result attained by the same means. In the repeated endeavor which he makes to attain perfection, as prescribed by the conditions of his work, his brain is constantly bombarded, as it were, by sense perceptions of the uncompromising demand for accuracy, correct proportion, perfection of plane and angle, without which all his labor inevitably goes for naught. The educational value of the operation is clearly its power to impress indelibly and concretely upon the student's brain the ideas alluded to. The repetition of these impressions with respect to the varied experiences of a similar character in his course of instruction become finally broadened into principles capable of the widest application. Later they become fixed as elements of character and are the motive power which determines his attitude toward all of the problems of life.

It is my belief that an objective system of training, one which constantly impresses the developing mind with the uncompromising accuracy with which nature in all her phenomena strikes the balance between cause and effect, and deductively, the inevitableness of her laws, is the kind of training most needed to fit a student for professional training in dentistry, to say nothing of its cultural value in any department of life. What a showing our profession would make if all its members were imbued with the qualities of accuracy and precision in thinking and reasoning as well as with an adequate conception of the proportions and magnitude of the rela-

tionship developed by the phenomena with which they are called upon to deal!

If we are in general agreement that these are qualities which it is desirable for us to have as dental practitioners, then our inquiry should concern itself with the best methods for their attainment. It is perfectly evident that all high school courses are not adequately arranged for supplying this kind of mental qualification, nor would I wish to convey the impression that I regard the manual training school course as the ideal system for our needs. It is probable that a conservative blending of the best features of each system will more nearly meet our requirements. I am strongly of the opinion that in addition to the manual training studies, mathematics, language, literature, history and especially science studies should be made an obligatory part of our dental high school curriculum, if I may so designate it. With respect to science teaching in the public school course, President Eliot of Harvard has said: "A rational course in science, rational for the schools, because it affords a substantial training in observing, recording and reasoning, rational for the colleges, because it affords sound preparation for further study of science during college life—is a great desideratum."

With respect to manual training work, an eminent teacher in one of our manual training schools writes me: "We devote a little less than one-third of our time to manual work; nevertheless, we are very certain that our boys come to our culture work with a certain freshness of interest and an increased power of concentration developed by the manual training, which makes two periods of culture work with us count for almost as much as three periods in the ordinary high school course."

My object in presenting this subject for your consideration is to call your attention to what I believe to be the fact, namely, that a high preliminary standard is not all that the term *high* implies, unless it is also adapted for fulfilling its purpose, which in this case is to determine the intellectual fitness of a student to enter upon dental professional study. Further, while the termination of the high school course is the correct and logical point of departure at which to enter upon the dental course, not all high school courses furnish the best preparation for that purpose. Therefore, in consideration of the foregoing, I submit as my concluding proposition that the importance of the matter demands that we take up the consideration

of a plan of preliminary training for dental study which shall best meet our requirements, and endeavor to have our high school courses modified to that end.—*Items, Jan. 1900.*

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COMPLETE NECROSIS OF ONE SIDE OF MANDIBLE. By W. H. Dolamore, L.D.S. Eng. On Feb. 17, 1898, a boy, aged 4 years, was brought to the Dental Department of the London Hospital. He was healthy, the youngest of a large family of ten children, all of whom are alive and healthy with the exception of the child immediately preceding this boy, who was stillborn in 1889. The father and mother are alive and in good health. The boy had had no previous illness, except measles when he was a year old.

Five weeks before I saw him he had pain in the region of the lower deciduous molars of the left side. His face also began to swell. He came to the hospital the same day, and the following day had one of these molars extracted. The swelling continued and he seems to have attended as an out-patient till I saw him on the day above-mentioned. I would specially mention that there was no history of any trauma. When he attended his face was much swollen on the left side, and the skin was inflamed and red. From the left lower gum there was a profuse discharge of pus, and the remaining deciduous molar was loose, carious, and the pulp was dead. In the neighborhood of this tooth was also a loose fragment of dead bone. Gas was administered and the tooth and necrosed bone were removed. An antiseptic mouthwash and cod-liver oil were prescribed. I am satisfied that he was well looked after at home. During the few weeks following the discharge from the wound became more profuse, but happily it was fairly healthy pus, having but little smell. The face remained swollen and hard, but the inflammatory blush disappeared.

On March 26 the inner margin of the alveolus had separated and was removed, gas being again administered. Three days later a further fragment of bone was also removed. A few weeks later I removed the first permanent molar. This erupted prematurely, owing to loss of the enveloping bone. As it was very loose and much pus was escaping around it I thought it might help to keep up the trouble and was better away. The roots were of course but little developed. Although at times part of the wound showed signs of healing up, our hopes that the disease would limit itself

were doomed to disappointment. The boy continued to attend, to take cod-liver oil, etc., and to keep his mouth as aseptic as possible. We were also able to send him twice for a fortnight to a convalescent home in the country, with marked benefit to his health. But considering how his feeding must have been interfered with, and what a continuous stream of pus must have been running down into his stomach, it was astonishing how well and plump he continued. Still, it was obvious that the necrotic process was spreading, and we could but await the separation of further portions of the bone.

On Dec. 16 the outer alveolus was found to be loose as far forward as the symphysis. Moving this caused movement of the whole of that half of the bone including the ascending ramus, which was obviously dead and separate. As it seemed to me that an external opening would be necessary to remove this large piece of bone, I asked Mr. Roxburgh to see the boy with me. He suggested that while the boy was under gas for the removal of the anterior loose fragment he would examine the condition of the ascending ramus. However, when I caught hold of this anterior fragment I found that the traction was bringing out the whole necrosed fragment, so I removed the whole portion through the sinus in the mouth. The bone broke at the region of the mental foramen.

The boy was taken into the hospital, and though he had to be fed per rectum for a day or so he rapidly recovered. Before he left the hospital I had a skiagraph taken which showed that this half of jaw was in process of being reproduced by the periosteum. I was specially interested, when having this skiagraph taken, to see if any of the teeth of the permanent series remained. The evidence, as one would naturally expect, was negative. He was able to open and shut his mouth quite freely when he left.

In October, 1899, in response to a letter, he was again brought to see me, and to my astonishment I found that in the interval the permanent central and lateral incisor teeth, of the left side, had erupted, and were quite normal in their attachment. I saw the boy again on December 29 in order to obtain a photograph, but there were no signs of any more teeth erupting, nor does the bone, which is now thick and strong, show prominences suggesting the presence of teeth in it. Naturally one does not expect more teeth to erupt, but neither did we expect the incisors to have survived. The cheek still remains prominent, but it is perfectly soft and movable. The

tissues, as a result of their increased vascularity during the long inflammatory period, are merely somewhat hypertrophied. The temporo-mandibular joint was not affected. The movement at the joint is now perfectly normal; even during the period of the separation of the sequestrum the movement was as free as could be expected, considering the swollen state of the cheek; nor did the swelling extend over the joint. The disease stopped before it reached the articular cartilage, hence did not involve the joint. The old articular surface of the condyle will have become joined to the new bone.

For the sake of comparison I give a photograph taken from a cast of the face of a youth, aged 20, whose temporo-mandibular joint has been ankylosed from an early age, consequent on suppuration spreading from the middle ear, in which the suppuration was a sequel to scarlet fever. The unhappy youth was dumb and deaf and could neither write nor read. He refused to have the ankylosis treated by operation, probably never grasping the advantages held out to him. Here the whole jaw is diminutive. The chin recedes and there cannot be said to be an angle, certainly no angular process, whereas even at this early date the other boy has a well-marked angular process. In the one, owing to the lack of use, the jaw is withering away and the muscles are degenerating, and consequently their points of insertion; in the other the jaw has already developed considerably, and doubtless will continue to do so, for fortunately the teeth on the other side are efficient and the jaw and the muscles will be well used.

It is said by some that though new bone readily forms after necrosis of the lower jaw yet this tends to atrophy in time. In the museum of St. Mary's Hospital is a sequestrum comprising the right side of the body of the mandible as far back as the angle, and four years after its removal it is specially noted that the loss had been repaired by a strong bar of bone. It is difficult to see why such new-formed bone should have a greater tendency to atrophy when it is formed in connection with the mandible than when it forms elsewhere, always provided that it is used.

It is interesting, in connection with the question of the influence which frequent use exerts on the growth or maintenance of the shape of the jaw, to notice the effect which the wearing of dentures exerts in postponing that degeneration and alteration in shape which

the lower jaw usually undergoes in old age. I take it that the youthful appearance of our present-day old folk is not merely due to the presence of dentures, but also to these preventing the degeneration of the facial and masticating muscles, and consequently to the jaw retaining somewhat the form characteristic of adult life. As is well known, the typical shape of a senile jaw, together with the laxity of the ligaments of the joint, allows the two jaws to come together and so permits a certain amount of mastication of food. Now people who have worn dentures are frequently unable to bring the two jaws into apposition at all. I do not remember to have seen this point mentioned before; indeed my attention was called to it by a relative of over eighty years of age, by no means robust, rather the reverse. He has, it is true, never been without teeth, natural or artificial, for more than a few days, consequently his jaw and ligaments have probably never degenerated to anything like the extent typical of his period of life. In this fact is an argument, other reasons apart, in favor of inserting dentures soon after the extraction of the teeth. But I am at the present time attending a patient, about forty years of age, who is edentulous. She is unable to approximate her jaws nearer than three-quarters of an inch. Yet some years ago, when her teeth were all extracted and she remained for six months without artificial substitutes, she tells me that her jaws could meet; indeed it is only within the last few years that they had ceased to be able to do so. Apparently the ligaments, muscles and probably the bone, which is well formed, have recovered their normal shape and tone.

To return to the case under discussion, and to take the question of the cause of the necrosis. The history would point to two possible causes. The more probable is undoubtedly a septic inflammation spreading from an alveolar abscess under a temporary tooth. But the fact that the tooth is said to have been extracted on the day following the onset of the pain makes this curious. I cannot, however, eliminate from my mind the idea that the wrong tooth may have been removed. Certainly the one I removed five weeks later was a very possible cause of the abscess. It is at least possible that a dresser in the casualty department may have acted with more zeal than discretion, for it is not easy in a child of four, with a swollen face, to make sure which is the offending tooth, nor are dressers at a general hospital very competent judges. Again, both teeth may

have had an abscess, though this seems hardly likely. But even supposing the cause to be an alveolar abscess, we are again met with the difficulty of explaining why the mischief should have spread so far in a more than usually healthy child. In hospital practice alveolar abscesses under deciduous teeth are extremely common. In my experience they get well, even when left untreated, far more rapidly than abscesses under permanent teeth. Often, as is well known, the alveolus over the roots is absorbed and these are ejected, apex foremost. This is a condition certainly rare in adults; indeed, I remember to have met with only one instance, and that recently. During the last few years I have seen a large number of abscesses in connection with permanent teeth, which have been allowed to run their course till they burst externally, often, as I have verified, causing limited necrosis of the jaw under their point of exit. But though it may happen, it is rare to find abscesses in connection with temporary teeth bursting on the face; in other words, the pus soon finds an exit beside the tooth or on the gum, and the inflammation dies away. But although it is easy enough from our knowledge of the arrangement and attachments of fasciæ to predict where an abscess may burst, when once we know the point at which it has made its way through the jawbones, yet we have no knowledge as to what determines the direction in which it burrows through these. It is at least possible that in this particular instance the inflammation may have traveled inwards and downwards, and have involved, killed and rendered septic the developing premolar situated between the roots of the diseased tooth.

Given a necrosed, septic body buried in the jaw, we have the cause of a long-continued intense inflammation, which would readily extend through the bone, honeycombed as it is by the presence of the crypts of all the developing permanent teeth. I believe it to be an undoubted fact that the presence of these teeth is a potent factor in the comparative frequency of necrosis in children. We know well how the dental tissues are affected by a comparatively slight constitutional illness during the period of their formation. Given a severe local inflammation, whether this be of dental, traumatic, constitutional or other origin, it is easy to see that the formed tissue would be easily separated from the forming organ—in other words, the portion of the tooth already calcified would become a dead body, and hence be an irritant to the surrounding bone, possibly causing

more or less of it to necrose. And even if this explanation be not accepted, it must be granted that the enamel and dentin-forming organs provide a vascular path by which germs, etc., may travel widely through the substance of the bone.

The second explanation is that it was due to an infective micro-organism, causing acute suppuration either starting in the bone itself or in and around the developing teeth. Such cases are not rare in other bones, especially the tibia, and affect either the epiphysis or the diaphysis; there is often no previous history. In 1897 Mr. Roughton brought the notes of a case. The patient was seven years of age and the bone affected was the mandible. The patient died of pyemia. But although, as stated, I did not see the boy at the onset of the trouble, the account given does not lead me to suppose that the constitutional condition showed such marked disturbance as is characteristic of an acute infective suppuration in bones elsewhere, and as was present in Mr. Roughton's case. I have ignored the attack of measles as a possible cause. First, this was three years before the onset of the necrosis, when the boy was one year old; second, the jaw had been perfectly healthy in the interval, as was shown by the absence of any local symptoms, and by the normal eruption of the milk molars. It is interesting that so large a sequestrum could be removed through the mouth, and also that at least two developing teeth were left undisturbed. Undoubtedly this was due to the sequestrum being left until it was entirely separate. The boy may at least congratulate himself on the absence of scars on his face, and on thus retaining its symmetry, owing to the sequestrum keeping the parts in their normal place till the new bone had formed.—*Jour. Brit. Dent. Assn., Jan. 1900.*

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EXPERIMENTS WITH NIRVANIN. By Dr. Robert Marcus, Dresden. In the last *Wochenschrift* Rottenberger called the attention of the dental fraternity to a new preparation, nirvanin. As I have had some experience with the article, I give my opinion of the same so far as my experiments will warrant. We selected the most difficult cases from among the material that came under our care. A number of extractions were made from persons of varying ages, after the use of nirvanin, with invariably satisfactory results. In 2 or 3 per cent of the cases absolute anesthesia was not attained, but a considerable degree of insensibility resulted from the use of

nirvanin. This may have been as much our fault as otherwise, resulting from too quickly applying the forceps. We brushed the gums with a 5 per cent solution of nirvanin, or applied tampons saturated to the gums, which produced the dual effect of anesthesia and antiseptis. According to Professor Einhorn and Dr. Heinz, a 1 per cent solution of nirvanin is sufficient to perfectly prevent the growth of bacteria. The gums were also injected to the periostium on both sides, the finger gently pressed on the point of injection to prevent an outflow of the liquid and to divide the injected fluid. I discourage the use of old solutions, preferring to make my solution at the time I wish to use it. For convenience sake I have had tablets of nirvanin made, each containing 0.25 gm., of which I dissolve one or two in 10 c. cm. of water for immediate use. About two or three minutes after this treatment forceps may be applied. No alarming nor dangerous symptoms nor aftereffects appeared or were ever noticed, and no difficulties of any kind resulted, except in the case of one patient who had a painless edema during one day. No pain is felt after the operation, and the process of healing is always normal. In all the cases the pulse was good. In several instances we used a 10 per cent solution of nirvanin to reduce the sensibility of the dentin with most gratifying results. After inserting a tampon saturated with a 10 per cent solution we could proceed with work in the excavations after a lapse of only two or three minutes. I advise adding 5 per cent of nirvanin to temporary fillings, and as a caustic paste for destroying pulps that is painless and at the same time antiseptic, I recommend the following: Arsenious acid, 1.0.; nirvanin, 1.0.; lanolin, q. s. to make paste. I have used nirvanin in several cases of pulp-capping, root-amputations and root-fillings, but prefer to reserve reports on these cases until later. Nirvanin, in conclusion, has proven itself in my hands a most effective and lasting anesthetic in the treatment of painful conditions of the mucous membrane of the mouth.—*Deutsche Zahn. Woch.*, No. 39.

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GENERAL SURGICAL ANESTHESIA AND ANESTHETICS. Dr. Ernest J. Mellish (*Medicine*, Dec. 1899) concludes a paper on this subject with the following propositions: 1. Chloroform almost invariably kills by its effect primarily upon the circulatory system, and ether by its effect primarily upon the respiratory system. There probably are exceptions to both of these rules, con-

sequently hair-splitting discussions on this point are unpractical and useless. 2. In anemia of the medulla the patient should be placed in the head-down position. In sudden paralytic dilatation of the right heart, as after several deep inhalations of chloroform, the heart should be rhythmically compressed by squeezing the chest, or the patient placed temporarily in the feet-down posture to empty the heart, artificial respiration being constantly maintained. 3. Anesthetics act directly or indirectly upon all the tissues, interfering profoundly with metabolism; and they tend to produce degenerative changes in the tissues, especially those of the vital organs. Of the anesthetics in general use, chloroform is probably most dangerous in this respect. 4. Deductions based upon laboratory experiments are apt to be deceptive, and should be accepted with the greatest caution in regard to sick human beings, unless they agree with conclusions based upon clinical investigations. 5. As a rule, ether produces less circulatory depression than chloroform. It causes dilatation of arterioles and increased capillary circulation, thereby insuring a good blood supply to the circulatory and respiratory centres and to the heart muscle; consequently these systems are in less immediate danger with ether than with chloroform. 6. Cocainizing the nasal mucous membrane to antidote certain bad effects of anesthetics is not a commendable practice. 7. On account of the reduction of body heat by anesthetics, they should be administered in a warm room, and the patient should be protected from loss of heat so far as practicable by proper covering of the body, by application of artificial heat and by protection from dampness of the skin. An excessively high room temperature will do harm by adding heat depression to anesthetic—and operation—shock. 8. Ether when properly administered is no more liable to produce nephritis than chloroform, perhaps not so much so. The changes produced in the kidneys by ether are as a rule temporary, while those caused by chloroform are apt to be more persistent. 9. Most of the pronouncedly dangerous effects of ether, and to a less extent of chloroform, upon the kidneys are due to poor preparation of the patient, faulty administration, bad after-treatment, or all of these combined. 10. Postanesthetic nausea is best prevented by preparation and after-treatment which favor normal physiological tonus, with especial reference to the emunctories. Gastric lavage at the termination of anesthesia, followed by vinegar inhalation, will in the great major-

ity of cases prevent serious disturbance from nausea. 11. The danger from hemorrhage is no greater with ether than with chloroform—perhaps not so great, since the bleeding which occurs from the effects of ether is primary and is more certainly provided against; while the circulatory depression and the vasomotor constriction due to chloroform to a great extent prevent primary bleeding and lead indirectly to later hemorrhage. 12. The safety margin between sufficient chloroform for anesthesia and the lethal dose is much narrower than it is with ether. 13. Patients should be well fed with easily digested and non-bulky food to within a few hours preceding anesthetization, and should be allowed water to within two or three hours of it. If this plan is followed, shock will be less and elimination of the anesthetic will be more rapid, and less harm is likely to accrue to the emunctory organs. For the same reasons water should be given as liberally as practicable after anesthesia. 14. Routine methods in selecting anesthetics should be avoided so far as practicable, the anesthetic being selected according to the conditions present in the individual case. 15. Any anesthetic, but especially ether, should be given with the greatest caution in the presence of special susceptibility to acute bronchial or pulmonary affections. 16. Further clinical investigation in the use of nitrous oxid is desirable and necessary, in order to establish its status in relation to surgery; but its general employment is not practicable. 17. The majority of inhalers on the market is bad. An inhaler made on the principle of the Esmarch chloroform mask is the cleanest, safest and best for ether as well as for chloroform. However, the "open method" of administering ether is not practicable in the tropics, at great altitudes, or in open-air military surgery, on account of too rapid diffusion. 18. The ordinary tongue forceps is a barbarous instrument and is often barbarously used. 19. The mouth-gag can usually be dispensed with; its use is often positively dangerous from forcing the base of the tongue against the pharynx. 20. The post of anesthetist is second only in importance to that of the operator, and the selection of an anesthetist should be made with great caution where possible. No person who has not a wholesome fear of anesthetics can be trusted to administer them. Beware of one who believes any anesthetic to be "perfectly safe." 21. The anesthetist should gain the complete confidence of the patient as to his ability and carefulness, so that the latter's mind will be at rest on these points. 22.

Patients who greatly fear anesthesia are the ones likely to give the most trouble to the anesthetist. 23. Other things being equal, the intelligent and educated take anesthetics better than those of low intellect. 24. The patient should be kept as free as possible from unnecessary noise and other disturbance during the induction of anesthesia. 25. The pupillary reflexes constitute the best guide to the presence or absence of surgical anesthesia. 26. The anesthetist should watch carefully the pupils, pulse, respiration, and the color and condition of the skin, depending upon no single symptom as a danger signal. 27. The patient should be carefully watched from the beginning of the anesthesia until fully restored to consciousness. 28. When anesthetics are properly administered patients seldom struggle. 29. Noisy breathing during anesthesia should be the exception, as it generally means faulty administration. 30. The minimum amount of anesthetic should be given consistent with the production and maintenance of the desired degree of anesthesia. 31. Compression of the phrenic nerve will, if properly done, usually control retching and kindred symptoms occurring during anesthesia. 32. The use of drugs preceding and during anesthesia should be avoided save where positively indicated, and if resorted to they should be used with the greatest care. It is best to depend almost wholly upon other means for the prevention of syncope or for resuscitation. 33. Anesthetic mixtures are in general less safe than the "straight goods." One cannot know the relative proportion of the different components that the patient actually inhales. 34. Partial or "talking" anesthesia is advisable in some cases, but should be avoided in delicate or sensitive patients, especially for prolonged operations, unless the anesthetic is taken quietly and with apparent abolishment of pain sense. 35. Finally, the subject of anesthesia and anesthetics should be thoroughly treated in medical colleges, and each student required to conduct a number of anestheses under the supervision of an expert.

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APOLLONIA, THE PATRON SAINT OF DENTISTRY. By C. N. Peirce, D.D.S., Philadelphia. Read before the Academy of Stomatology, Dec. 26, 1899. I have, by request, Mr. President, a very pleasurable function to perform. A lady member of this society, Dr. Mary H. Stilwell, desires to present to this organization

the photograph of a character as unique and interesting as it is ancient, and she has kindly requested me to be her spokesman.

Some of you may be somewhat familiar with the subject to be presented, but doubtless to most of you the history and character of Saint Apollonia, the "Patron Saint of Dentistry," will be novel. That dentistry, of all the branches or specialties of medicine, has a patron saint I assume is known to very few in the dental profession. A brief recital of the history so far as obtainable of this saint has an historical as well as a professional interest. She was the daughter of a heathen magistrate in the city of Alexandria. Her mother, although not a Christian, was inclined to look with sympathy on the believers in that faith, and, being childless, she asked, on being told of her great power, if the Virgin could grant her prayer for a child. She gave the pilgrims food and money, so, full of faith, she invoked Mary's intercession, after which the prayer was answered by the birth of Apollonia. To the child the mother often spoke of the wonderful power there was in the prayers of these people. It is not surprising, therefore, that Apollonia as she grew up felt more and more deeply that this alone was the one religion that could satisfy and ennoble her life. Longing to obtain the grace of baptism, she made her way to Saint Leonine, a disciple of Saint Anthony of Egypt, and as he baptized her he bade her go to Alexandria and preach the faith. So she went forth, and though she was only a woman, young and frail, yet so eloquent were her words, so fervent her zeal, that she made many converts. About this time a tumult had been stirred up in the city against the Christians, and the mass of the people were enraged at her preaching and came with bitter complaints to her father, who gave her up to be judged by the governor. They brought her before the idol temple and bade her worship the graven image. It is reported she made a sign of the cross, and there came forth from the statue an evil spirit shrieking, "Apollonia has driven me hence." This was more than could be borne, the people thirsted for vengeance, so they tried by torture to overcome her constancy. She was bound, and one by one her teeth were drawn out, but still she did not flinch or fear, and on her refusal to accede to the demands of her persecutors and renounce her faith, she was brutally clubbed about the head and face and subsequently suffered death by fire.

For a period of nearly fifteen hundred years her intercession has

been sought for relief from all pain incident to dental diseases, and her relics have been and are regarded as possessing great efficacy in the cure of the same. The canonization of Saint Apollonia took place about the year 300 A. D. On the 9th of February of each year she is commemorated. The so-called relics or remains of her head and jaws which were preserved from the fire into which she was thrown are preserved in various churches in the East and West. Church Saint Apollonia at Rome has a portion; in St. Maria Trans-tiberina her head rests; in St. Lawrence, outside the walls, her arms; in St. Basil's, part of her jaws; while in churches at Naples, Antwerp, Brussels and Cologne portions of the bones or teeth are cherished. In Quebec we find also portions of a bone or tooth resting in some of the churches and viewed with veneration.

Furini has painted her in a picture now at Florence, Luini in Monastery Maggiore Milan, and in the Milan Gallery there is an altarpiece by Francesco Granacce, on one wing of which is an almost life-size figure of her. Underneath the picture at Florence is the story of her life, from the moment of the angelic call until her death. Procaccino has also painted her martyrdom, and she is also to be found in the works of that somewhat sentimental painter, Carlo Dolce. Chapels and altars in her honor are found in many of the Eastern and Western churches. Her distinctive emblems are the pincers and tooth; the latter, in some of the paintings, is hung by a gold chain around her neck as an ornament. Such records as we have been able to collect of Saint Apollonia give evidence of her dauntless courage, her perfect obedience to what she believed was the voice of God, and her fervent missionary spirit. Her story adds one more link to the long chain of heroes and heroines whose lives strike like sunlight across many a dark page of history.

The above short sketch has been obtained from "Gould's Lives of Saints," "Cassell's Dictionary of Religion," and a Letter of Dionysius to Fabius, Bishop of Antioch, published in the History of the Christian Church, by Eusebius, during the persecutions of the Christians at Alexandria, in the year 249.—*International*, Jan. 1900.

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HYDRO-MECHANICAL THEORY OF SENSITIVE DENTIN. By G. S. Junkerman, D.D.S., Cincinnati. Read before Ohio State Dental Society, Dec. 1899. Cataphoresis has its fling, being based on the supposition that it was a local anesthetic. Having

failed in this department of therapy it was eminently successful in another, giving a most excellent account of itself as a pulp-destroyer. Cataphoresis may not have brought to light the fountain of eternal painless dentistry, but its intimate study has caused a new light to fall, and while it may not have been the goal it certainly has been a pathfinder. Cataphoresis carries with it the thought of an osmosis, the track of dentin being an osmotic membrane, the pulp on one side and the external fluids on the other. We think of the dental tubuli but we forget the nerve fibrilæ. The accepted truths of cataphoresis prove the dental tubuli to be filled with fluid and not fibrilæ. The next step is to account for the phenomena of sensitive dentin, conceding the absence of fibrilæ.

Impressions must be conveyed to the pulp, which is the seat of all sensation in the teeth, by means of hydro-mechanics: pressure or motion of fluids in tubes. Picturing to yourself the principle of the hydrostatic paradox, and using the pulp-chamber with its contents as the vessel and one of the dental tubuli as the tube, we have a reproduction of the hydrostatic paradox. Pressure produced on the end of the tube will be equally distributed to the contents of the pulp-chamber, whether the pressure be produced by cotton or the stroke of an instrument. If you put a bundle of these together you have an osmotic membrane upon which impressions outward or inward may be made by any substance that will induce osmosis. Sugar and salt produce pain upon the pulp through these tubes by disturbing the equilibrium of the fluid in them, producing traction or compression. The condition known as teeth being on edge is another exemplification of the same principle. The continued use of acid when the teeth are "on edge" is not productive of pain, but the instant an alkaline food is brought in direct contact with the teeth the osmotic influence is changed, and a disturbance in the tubuli occurs with resulting pain. In furtherance of the same phenomenon, if a hard body, as the smooth surface of a steel instrument, be brought in contact with the "on edge" surface no pain results, and it in reality becomes a curative treatment of that condition, closing up the osmotic surface by compression. Nerve fibrilæ will not account for all the phenomena of sensitive dentin, nor is their existence consistent with the comprehension of a system of nutrition and circulation in the dentin and enamel. We do not comprehend this circulation as one of a general nature, causing the

waste and repair in the tissues of the teeth in general, but rather of a special nature, but nevertheless a circulation; just such a circulation as occurs in the terminal tissues in every part of the human body, a circulation by osmosis where the fluids are converted into the special tissues for which they are intended. That during the life of the pulp the dentin and enamel are supplied with nutritive fluid cannot be denied; conversely, after the death of the pulp these tissues manifest symptoms of inanition characterized by lack of translucency of enamel and increased chalkiness of the dentin. The same condition exists in old dentin and enamel where the dental tubuli have filled with lime salts and where the circulation has become wholly or partially strangulated, the pulp still maintaining its vitality. If we admit of a circulation in the enamel and dentin we have sufficient data to admit of a demonstration, without nerve fibrilæ, of sensitive dentin on the principle of hydrostatics and hydrodynamics. Upon this theory it is of interest to examine the phenomena of sensitive dentin. The greatest sensibility is found at the periphery or the line of junction between the enamel and dentin; because here we find the greatest number of terminals of tubules. Force produced at this point becomes magnified because it is transmitted to a greater number of tubules, and the pressure or motion of the fluid is in proportion to the number of tubes impressed. The periphery is at the greatest distance from the pulp and the pressure made here must be distributed through a greater number of particles of fluid and consequently magnified proportionately when it reaches the pulp. The force increases in direct proportion to the length of the tubes. Sensitive dentin is found most frequently and to the greatest extent in well organized teeth. In these cases we find a rank growth of the dental tubuli. There are a great number of tubules and there is also a greater tendency to anastomotic condition, the formation of a network, radiating towards the periphery. This condition increases the length of the tubule and consequently produces greater disturbance when force is applied. Conversely, a poorly organized tooth is less prone to sensitive dentin. The tubules are straighter and consequently shorter. There are also not so many of them, and those that exist may be broken by defective tracts that so frequently appear in poorly organized dentin. It does not necessarily follow that all well organized teeth have sensitive dentin nor that all weakly organized

teeth have lack of sensibility. The dental tubuli may have been infiltrated by calcareous matter, thereby destroying the fluid continuity, and in such cases well organized teeth may be operated upon without pain.

Poorly organized dentin may be extremely sensitive, not alone on account of the delicate state of general health increasing the susceptibility, but because the softened tissues permit more easily a slight amount of force to be distributed to the greater number of tubuli. As an example of this condition cervical cavities containing a layer of softened dentin are frequently sensitive only until this layer is removed. The application of the instrument to any part of the layer distributes the force through the entire surface which this layer covers. The therapy of sensitive dentin indicates the hydro theory to be correct. Heat and those other agents that are absorbers of moisture have proven the most beneficial ones. Anodynes not possessing these qualities have been failures. Cocain and cataphoresis should have anesthetized the nerve fibrilæ, but water and cataphoresis have been just as effective. The result in both cases was an osmosis, but the failure of any wonderful end, except to eventually destroy the real seat of sensitive dentin, the pulp. We have the remedies for sensitive dentin in anhydrous sulfuric acid, but other drugs in milder cases answer quite as well, but in the case of the stronger medicine we have not the power to limit the effect. Osmosis once established in the strata of dentin is not easily accessible to interruption. We look upon the fluid in the dental tubuli as not only a circulatory fluid for nutrition, as the blood for other tissues, but as the carrier of impressions accomplished by the nerves in other tissues. The equilibrium of these fluids is maintained by capillarity, disturbed by chemical reactionary changes and also by mechanical force; thus all this force is produced by the pressure or motion of fluid in tubes and owes its distribution to the laws of hydrostatics and hydrodynamics.—*Ohio Journal, Jan. 1900.*

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CHLOROFORM IN DENTAL PRACTICE. By F. A. Weld, D.D.S., Belvidere, Ill. Read before Northern Illinois Dental Society. This drug was simultaneously discovered in 1831 by Guthrie of the United States, Soubeiran of France, and Leibig of Germany. Its present name was given it later on by Dumas, and it was first used as an anesthetic by Sir James Simpson, of Edin-

burg. Chemically it is known as terchlorid of formyl, and is obtained by the action of chlorin upon alcohol—the methods employed being either the addition of chloral hydrate to an alkaline solution, or of chlorinated lime to ethyloxid. This is distilled and subsequently purified by the addition of sulfuric acid, sodium carbonate and lime, and redistillation is then resorted to. It was formerly supposed that this was a stable solution, but later it was found that even under ordinary circumstances, such as exposure to light and air, it had a tendency to decompose, forming hydrochloric acid and carbonylchlorid. The latter substance, according to our best authorities, is the cause in most cases of aftersickness, and can be avoided by keeping a little slaked lime in the bottle and filtering the supernatant liquid as required.

Though chloroform may be contraindicated in many cases where the period of anæsthesia is to occupy an extended period of time, for, as Buxton says, "Chloroform, whether through poisonous effects on protoplasm or in some other way, exerts some deleterious influence upon the tissues of patients," yet for a *dental* anæsthetic where the period of duration is to be short, it is perfectly safe. The great danger point is then at the very *beginning* of anæsthesia, when it should be given slowly, to avoid paralysis of the respiratory and inhibitory centers. Then as soon as respiration and circulation are regularly established the patient should be pushed rapidly to complete anæsthesia. Not until the third stage should any operation involving the fifth nerve be attempted on account of the danger of disturbing the centers already referred to.

Dr. Sayre, of the Bellevue Hospital, reports over 5,000 cases of chloroform anæsthesia without serious symptoms in any case. His method, though, is apt to strike terror to the heart of an orthodox anæsthetist who has been taught that ninety-five per cent air and five per cent chloroform were the proper proportions. Dr. Sayre says: "Use as small an amount of chloroform as possible and allow the patient to have no more air than can be helped which has not been thoroughly impregnated with chloroform." His reason for this being that oxygen being the natural antidote for chloroform will, if admitted when serious symptoms occur, immediately revive the patient, and also that the small amount of chloroform thereby required to produce anæsthesia obviates the danger of blood and tissue change during the period.

The foregoing formulates the question: "How much chloroform is required?" The quantity varies with the patient. I have a container holding two ounces from which seven patients have been anesthetised, and in that proportion there is still enough left for at least three more. Some patients who seem particularly susceptible to its anesthetic action will not require more than twenty or thirty drops, while others require more, and after anesthesia is complete only a very small amount is required to keep them in that condition for any desired length of time, giving you ample opportunity of not only removing all teeth necessary but also roots which are imbedded in the gums.

The position should be recumbent and the forming of a mass or clot of blood in the throat avoided. The question of having recently eaten is of no importance, as vomiting seldom occurs. In fact our latest literature on the subject advises against its administration on an empty stomach, as the vapors, more or less of which will be swallowed by the patient, act as a local irritant on its mucous membranes. This is largely obviated by the presence of food.

The method I use is as follows: An ordinary face mask is covered with a heavy material to prevent the ingress of air to the patient. I prefer eiderdown with the "fuzz" inside. A bottle is then provided with a cork in which two longitudinal slits have been made, though one will do. If two are used one is for the ingress of air to the bottle, the other for the egress of chloroform which is carried to the mask in small drops by a piece of cotton. The drops being supplied slowly at first, with the mask held closely to the face, the sensation of strangling is avoided, and coughing and struggling are practically unknown.—*Review, Jan. 1900.*

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NEW TREATMENT FOR EMPYEMA OF THE ANTRUM.

By C. H. Nicholson, D.D.S., Rochester, N. Y. Read before union meeting of the Seventh and Eighth District Dental Societies of the State of New York, Oct. 24, 1899. The preparation referred to is protargol. I have called it a "new treatment" because while it has been on the market for a couple of years and has been used in general practice as a bactericide, especially in urethral troubles, to some extent in ophthalmic, and latterly in auricular practice, it has not heretofore been introduced into the field of odontological therapy. In addition to its efficacy I am glad to recommend its use for the

reason that it permits of a conservative line of treatment and the avoidance in many cases of radical operations, such as entering the antrum through the cuspid fossa, etc. In the cure of this troublesome disease, which I fear is too frequently passed over unnoticed by the general practitioner, or if it is forced upon his attention, the patient is too often referred to a nose and throat specialist for the cure of a trouble distinctly within the province of the dental surgeon.

Protargol is a silver proteid. A yellowish light powder easily soluble in water, forming a brown liquid, dark according to strength, of neutral reaction, and unaffected by exposure to air, heat or light. It is somewhat similar to argonon, but differs in that it contains twice as much silver as argonon (8.3 per cent) in firm organic combination, and is not precipitated by albuminous or sodium chlorid solutions, has extraordinary penetrating power, and is non-irritating. Solutions of from 2 to 25 per cent have been used in genito-urinary diseases, and 5 per cent for affections of the eyes.

My attention was called to it by a specialist in nose, ear and throat troubles, who had read of it being used in the middle ear with success. I immediately obtained a supply and used it in a case of empyema of the antrum I was then treating, which had proved unyielding to the usual methods of treatment, with the most surprisingly satisfactory results. My experience with this case may be best noted in the following report: A young man, George N., aged 28 years, was brought into my office by a prominent surgeon of one of our leading hospitals for examination, giving the following history: He had a carious tooth, upper right first molar, which had been troubling for some time, attended with fullness in the superior maxillary region, serious pain in the orbit with protrusion, frontal headaches, and some alveolar enlargement. Attracted by the glaring advertisement of one of our numerous "Dental Parlors," he called and consulted the proprietor, who attempted treatment of the tooth for alveolar abscess, which was continued for some days without success, and, the trouble becoming more aggravating, extraction was resorted to and the patient dismissed. Two days later he visited the parlors again, with pus and blood discharging freely from his nose and mouth. The proprietor was much alarmed, and told the young man he was likely to lose the side of his face, and advised him to consult the best doctor he could find. He went to the

hospital referred to, was examined, given some medicine, but went back the next day worse than ever; at this call he was seen by the chief surgeon, who at once brought him to my office for examination as stated above.

I found the alveolar process and floor of the antrum considerably fractured, with some necrosis, the membranous lining badly inflamed and highly painful to the touch of the probe, especially in the orbital region, but a large roomy cavity was presented particularly free from bony septa, having a free opening into the middle meatus of the nasal cavity. There was a liberal discharge of pus from the nose and alveolus, with a disagreeable odor and other characteristic symptoms. I of course diagnosed empyema of the antrum, and the surgeon kindly turned the case over to me.

Treatment was begun after removal of all necrosed bone, by douching the cavity with six ounces of a 2 per cent solution of sodium chlorid, followed with eight ounces of a 10 per cent solution of peroxid of hydrogen and a saturated solution of boric acid twice daily. This was continued for six days, with the result that the discharge was considerably lessened, the odor, headache, etc., had disappeared and the patient generally more comfortable. These injections were all introduced warm with a Eustachian catheter through the alveolar opening, free vent and drainage being obtained through the right nostril. I might say, in passing, that while all peroxid preparations are reported to be neutral, I found them strongly acid and very irritating to the mucous membrane in its then inflamed condition, especially Marchand's, Oakland a little less so, and McKesson & Robbin's 3 per cent pyrozone the least of the three I tried. I found by using pyrozone I could increase the strength of the solution to 15 and 25 per cent, and substituted the boric acid after the sixth day with Gilmore's germicide, which depends on formaldehyd for its antiseptic properties, had the patient call once a day, and directed him to procure a suitable bulb syringe and wash out the cavity with the boric acid solution two or three times daily. This I continued for a period of twelve days with a not very marked change in the character or quantity of the discharge, when I received the information of protargol as above stated.

After securing a supply of it, the cavity was thoroughly washed out with the saline and pyrozone solutions and about two drams of 10 per cent solution of protargol was injected, letting as much of

it as would remain. The patient was directed to call again in five days, and to continue the boric acid injections after forty-eight hours. On his return I was delighted to find a marked change for the better in all the remaining symptoms. The treatment was repeated and he was directed to call again in a week, when, after the most careful examination, I could find no trace of pus or any symptoms which had been present. I repeated the treatment, however, as a safeguard, reducing the strength of the protargol solution to 5 per cent, directed the patient to keep the alveolar opening thoroughly cleansed and allow it to heal, and dismissed the case. After the injection of the 10 per cent solution of protargol the young man complained of a severe headache which continued several hours; if you will shake the bottle containing the sample presented you will notice it filled with foam like soap-bubbles, and I am of the opinion that the distress experienced was due to the pressure caused by this rather than to any irritation from the drug itself; still, perhaps a 5 or 7 per cent strength would answer as well.

I can at least remove one objection to its use which at once occurred to me, that is discoloration of dentin. I have saturated pulp-chamber and canals of teeth with a 10 per cent solution, but find no discoloration, such as follows the use of silver nitrate.

Dr. Benario states that fresh cultures of *Staphylococcus pyogenes* were killed by a 2 per cent solution in twenty minutes, and those of the sixth generation were killed in fifteen minutes by a 0.5 per cent solution, and the action was more rapid in bouillon and serum than in sterilized water. So that I have strong hope that protargol will be found a most effective remedy in alveolar abscess and many other branches of our field of operations.—*Cosmos*, Dec. 1899.

* * *

ABRASION OF THE TEETH. By A. H. Thompson, D.D.S., Topeka, Kan. Abrasion of the teeth must be sharply distinguished from erosion, but the two terms are often employed interchangeably in a manner that has led to some confusion. Erosion properly has reference only to chemical solution of the lime salts of the enamel and dentin, while abrasion is applied to wear of these tissues from mechanical agents only. The two processes are quite unlike, though the results may be somewhat similar, as in the wasting of the labial surfaces of the anterior teeth, where it is often difficult to distinguish one from the other.

Abrasion is therefore the wear and wasting of tooth structure from mechanical causes. This occurs in one instance upon the labial and buccal faces of the teeth from the friction of the toothbrush and a gritty tooth-powder. The wear from this cause is often quite destructive and results in the cutting of deep notches at the cervical borders of the enamel. The dentin is as smooth as if cut with a file and polished. Sometimes the dentin in these notches is quite sensitive, but not usually so. The remedy is to prepare the cavity properly and fill with gold, and then instruct the patient to use the brush with a vertical instead of the hard cross-motion, which was the prime cause of the destructive wear. The gritty tooth-powder must also be discontinued and one of a milder grade substituted; and also a softer brush with irregular cross ridges should be employed. Wear of the entire labial face of the anterior teeth may result from this cause also and must be corrected by the same change in the manner of brushing the teeth, i. e., the substitution of the vertical for the transverse motion in brushing. Effects similar to abrasion are sometimes produced by erosion, but the causes are very different. Caries may also attack the abraded places, but the active brushing usually prevents decay.

Mechanical abrasion of the occlusal surfaces of the teeth is of frequent occurrence. One of the most common causes of this is tobacco-chewing, the silica in the tobacco leaf acting as a most effective abrading agent. But tobacco-chewing is not the only cause, as many persons have abraded teeth who do not chew tobacco. The loss of the molars will throw the work of mastication upon the anterior teeth, which will consequently become worn for want of the support of the molars. Abrasion tends to produce that end-to-end occlusion which contributes to wear in a marked degree. The lower jaw becomes more protrusive and causes a distinct prognathism. In the first degree of wear the cusps are merely worn off, so that little islands of dentin are exposed and these soon become cup-shaped. In the next degree the cusps are fully worn down and the entire surface is cupped out to greater or less extent. In the third degree of wear there is destruction of the greater portion of the crown, with approach to the pulp and its dentinification, and recession, or exposure and death, and a broken and ragged condition of the enamel borders of the crown. As the teeth approach this condition the wear of the different tissues resembles somewhat

that of the herbivorous animals, where the different densities of the enamel dentin and cementum produce a constantly rough surface for the masticating of resisting vegetable fibre. The edges of the enamel in the extreme stages of wear are sharp and ragged, and are a constant menace to the tongue, which is frequently cut by them and sometimes severely wounded. Constant irritation from this source may sometimes cause the tongue to become the seat of cancerous growths. On account of this danger, in persons past middle life, this sharpness must be carefully watched and corrected. In extreme wear the upper and lower teeth interlock, so as to form an almost invisible line of contact, which recalls the normal arrangement of the occlusion of the herbivora. The incisors and cuspids are also gradually worn down until the thick portion of the crown at the cervical third is reached and the tooth looks thick and wide. This appearance of the incisors and cuspids has led to the popular idea of old persons having "double teeth all around," which we often hear of in practice.

The remedy for this occlusal abrasion is to fill the worn depressions with gold so soon as the enamel is worn through and the dentin begins to present the characteristic cup-shaped point. This cup should be filled at once. When the wear has progressed to the second or third stages, covering with the gold cap crown will sometimes be necessary to protect the tissues and restore the teeth to their normal condition. This will often involve lifting the bite to a considerable degree and consequently restoring the contour of those teeth that are not so badly worn but they can be built up with gold.

These worn teeth are often very sensitive and this will require corrective treatment for the comfort of the patient and to permit of restorative operations. Cauterizing is the first and simplest remedy, by applying carbolic, nitric or sulfuric acids, nitrate of silver, chlorid of zinc, etc. Sometimes it will be necessary to use zinc phosphate by pressing well into the depressions, where it will stay more or less well. If it adheres for a week or so the cavity may be filled with less pain. If it does not stay well, owing to the closeness of the articulation, the cement will need to be reapplied as it comes off, and by this treatment the irritation can be gradually overcome. If not, or if the pain and irritation is of such nature as to indicate congestion of the pulp, this will of course need to be destroyed.—*Stomatologist, Jan. 1900.*

Letters.

BUFFALO LETTER.

Dear Digest:

BUFFALO, Feb. 16, 1900.

Our "Oom" Willie is again giving the reading public the benefit of his versatility. In the columns of the Buffalo *Sunday Express* his facile pen is painting a series of very impressive word-pictures upon Cuban life. After becoming shocked with a few volts of his charming descriptive, one would almost imagine that "Oom" Willie at some time had really visited the Gem of the Antilles, but so far as Pa Nam can learn, the charts used by the old-time mariners sailing the inland seas showed no Cuban ports of entry.

The Alumni Association of Buffalo has recently put up a strong claim for recognition. The enthusiasm of youth, backed by general merit, gave to the local profession a series of clinics and entertainments of great interest during their last meeting. Ottolengui, the romancer of our profession, was in fine fettle and received hearty applause. If the Alumni keep up the pace just set by them the City and Eighth District Societies will have to do lively stunts in the race for dental meeting honors or they will find themselves distanced.

The local harvest of blackmail levied by the International Tooth Crown Co. has not been a very rich one to date, so far as evidence goes. However, all Buffalo dentists do not enter the confessional regularly, and much must be left to conjecture.

Deliver us from the Crown patent opinions in Philadelphia. Is it possible that the S. S. White Co. is weak enough in its fancied strength to play into the hands of the International Tooth Crown Co.? These people, in the full interpretation of every analytical mind in our profession, are but a gang of blackmailers under quasi legal authority. Has not the dental profession of this country paid rich tribute to the Whites for years? This leads us to wonder if it is possible that the Crown Co. and the White Co. have any common interests. If not, what could possibly be the motive for the circular of misinformation recently given to the dental world by the White attorneys. But Pa Nam does not know, and the White Co. won't tell, so take your choice.

However, the writer has never hesitated, nor does he now, to

stand firmly upon the righteousness of compensation for brains' products. Genius should enjoy the rewards of its elaborations. The trailers, the hangers-on to the skirts of professional life, produce nothing upon which to advance. Yet they are the very ones to hold aloft their hands in an ecstasy of professional bunco-bosh and shout from the house tops: "If you have made a discovery which is valuable to our profession it is your duty to give it to us!" (Us! Oh! Rats of small growth!) Genius is God-given and but rarely bestowed, and to tell the truth, Pa Nam does not believe that nowadays the Almighty is looking for partners in any enterprise who are likely to squander his endowments among the leading pensioners upon humanity. Yet we must not be understood to be in any way abettors of fraud, and only as fraud, almost blackmail, do we regard the claims of the International Tooth Crown Co., no matter by whom indorsed.

You who inflate your lungs constantly with nature's purest air as it comes across the clean stretch of prairies can little appreciate our woes, but local genius and research (shears and love of "I am It") may yet save us, providing we survive the treatment. If you wild and woolly are not immune against microorganism colonization, just send for "the only sure-thing killer." You bet he is a killer—unless limited to one short speech each session. Buffalo will pay for transportation (one way; after that you keep it). Go join a trust, you peddlers of flim-flam wares, and leave us to remember you as first you appeared among us, fresh and innocent from the country, in your high-water pants and celluloid collar.

Yours truly,

PA NAM.

A GOOD EXAMPLE FOR DENTAL SCHOOLS TO FOLLOW.—According to the *Vienna Klin. Rundschau*, Russia has decided to restrict the over-production of doctors by limiting the number of students received for the freshman year, at various medical colleges, to a number, ranging from 100 at Warsaw and Kasan to 200 at Kieff and 250 at Moscow and St. Petersburg.—*Jour. A. M. A.*

TO PRESERVE FORMALDEHYD.—In view of the widely increasing use of this substance, the following suggestions are offered for its preservation. Formaldehyd is a gas and its saturated aqueous solution is 40 per cent. In order to hold its strength it should be kept cool and at an equal temperature. Being an aqueous solution it should not be exposed to freezing temperatures. At low temperatures it becomes polymerized, causing a thickening of the liquid, due to a separation of the polymer.—*Lilly's Bulletin*.

The Dental Digest.

PUBLISHED THE TWENTY-EIGHTH DAY OF EVERY MONTH

At 2231 Prairie Avenue, Chicago,

Where All Communications Should be Addressed.

Editorial.

DENTAL PROTECTIVE ASSOCIATION.

The International Tooth Crown Co. have reached Ohio in their peregrinations, and we are daily in receipt of letters from members in that and other states, saying they are threatened with suit unless they settle, and asking what course shall be adopted. We would simply say to the members as we have several times in the past—Do not settle with the Crown Co. under any circumstances or on any conditions. Refer the Crown Company's agents to the Dental Protective Association, and we will take care of you. All important news will be given from month to month in these columns.

NATIONAL DENTAL ASSOCIATION.

At the last meeting of the National Association, which convened at Niagara Falls, August, 1899, it was decided by vote of the members present to have the next annual meeting at Old Point Comfort, June 26, 1900. The usual date of gathering was changed in order to accommodate those who wished to attend the Dental Congress at the Paris Exposition. Now, however, these same men find that a later date will be more convenient, and the executive committee has been asked to change the time to one or two weeks later, either July 3d or 10th, preferably the latter. This can be done only by a vote of the Association, and we would therefore ask that every man who expects to attend the meeting shall send immediately to this office his preference regarding dates.

This discussion should not interfere with the officers and members of the sections, who we trust are preparing a good literary program. Last year's gathering set the pace and we must not fall behind in our achievements at the coming meeting.

IT'S A WISE CHILD THAT KNOWS ITS OWN FATHER.

An unsigned circular letter has recently been mailed to the profession throughout the country. The DENTAL DIGEST has received

a copy, and despite our rule to ignore anonymous communications whose authors are unknown to us, we reproduce the entire circular, as follows :

"TO THE TEACHERS IN THE DENTAL COLLEGES OF AMERICA.

"For years it has been the almost unrebuked custom of disaffected and uninformed members of the dental profession to attack our colleges for every fancied evil from which it is believed that dentistry suffers. Every phase of personal envy and malignity has been vented on the schools, in wanton ignorance or reckless disregard of the fact that the reputation of the profession itself is indissolubly connected with that of its educational institutions. Unmerited calumnies have been iterated and reiterated in dental societies and dental journals, until a considerable proportion of the profession has been led to believe that to accept a position as a professor in a dental college is at once to leave the ranks of honest men, and to become grasping, avaricious, sordid, indifferent to professional interests and solicitous only for self.

"This defiling of their own nest on the part of certain dentists has gone on until the reputation of American dentistry has been debased to the lowest point in Europe. Formerly, when it represented not the tenth part of what it now does, dentists and dental students in great numbers flocked to American dental schools from abroad, and the American degree was anxiously sought. American dentists settled in all the principal cities of Europe, introduced American methods of practice, often secured the best clientele, and in a number of instances were appointed court dentists. The career of the famous Dr. Evans of Paris was but a more brilliant type of that of many American graduates. This naturally aroused the jealousy of foreign dentists, and for years foreign journals have caught up everything that has been published at home to the discredit of American schools, have circulated it widely and pointed it out as an evidence of our unworthiness, for as our professional status must be reflected in our colleges, all that is necessary to bring about the proscription of the one is to establish the worthlessness of the other. Especially has this been the case in England, where one never sees in the dental journals anything concerning American colleges, save quotations from the captious criticisms of disaffected and unpatriotic Americans.

"This evil has been further intensified by the speeches and writings of American dentists who desire to be honest, but who have taken for granted the discreditable denunciations of others, and believed them without demanding the proofs. By giving currency to shameful rumors they have unwittingly degraded their profession and debased their own professional status. The National Association of

Dental Faculties is striving earnestly to raise the tone of American dentistry at home and abroad, but it has been thwarted by the opposition of men from whom better things might have been anticipated. There are even editors of journals which depend upon professional support, who appear never to miss an opportunity to publish anything to the discredit of our educational institutions, but who never see anything to commend. Some injudicious teacher may in mistaken zeal to serve his college overstep the boundaries of professional propriety, but instead of extending to him that professional charity which it is the right of every man to receive until his motives and the circumstances of the case may become known, his fault is magnified and published to the world as another instance of the bad character of all our schools and teachers. The only excuse that can be offered for these aspersions of our professional reputation is that the editors in question know nothing of what is being done in our professional schools. They are either non-graduates themselves or they took their brief college course when dental education was yet in its infancy, and they have evidently not kept pace with the onward march of events.

"It is time that our schools and teachers begin to indicate the possession of some self-respect, and a desire to protect their good name by declining longer to support journals and supply-houses whose organs are engaged in maligning our institutions of learning. This is the only way by which a stop can be put to these malicious attacks, and no dean of a college should hesitate to employ it. Swayed entirely by the mercantile spirit, and governed by mercantile interests, if these men will not respect our professional institutions they are not entitled to our patronage. No college man will object to honest and candid criticism, because we cannot always be the first to perceive our own defects, and are enabled to profit through having the imperfections of our educational system kindly pointed out.

"But during the past year at least two of our dental journals have given editorial prominence to accusations, or what is worse, to covert insinuations, that our colleges are unworthy professional support, and that men who have done more to elevate their calling than their detractors can ever hope to accomplish have been animated only by the most sordid considerations. Not a word has been said in condemnation of the fraudulent schools that have been selling their diplomas abroad, but every bitter attack has been reserved for the colleges which are doing their utmost to bring about a better educational condition. Teachers with whose reputation our professional good name is inseparably connected have, by implication, been charged with the most miserable inefficiency, and their experience, in some instances that of more than a generation, has been utterly condemned by self-elected critics whose every written sentence proclaims their entire ignorance of everything educational. All

teachers and schools have been classed together and charged with the most offensive advertising, and the testimony of the outcasts of dentistry has been accepted and published as sufficient proof of the unworthiness of men whose honor is untarnished in the minds of those who are without personal bias.

"This professional throwing of mud must cease. Every self-respecting teacher should begin to resent the malicious and prejudiced disparagements that are instigated by anything save a desire to serve the profession of which these men are unworthy representatives, or are prompted by a reprehensible ignorance of what must inevitably be the effect of their unprofessional course of conduct. It is hoped that, recognizing this, our colleges will withdraw all support from these journals and supply-houses that persist in misrepresenting our institutions of learning and debasing our professional reputation, until wiser editors are appointed, or those now in charge of these mercantile organs shall have made themselves better acquainted with our professional affairs."

It is not our purpose to magnify the importance of the poor cowards who wrote this screed and were ashamed to own their offspring. We neither know nor care who the authors are, but some interest attaches to the subject matter of the circular because it voices a dangerous sentiment.

Intelligent criticism is always constructive, never destructive. According to the puerile sophistry of this circular the science and practice of dental surgery in America rests upon such an insecure foundation that its power and prestige can be swept away by criticism. Such an audacious and slanderous statement cannot be entertained for a moment by any well informed man here or abroad. Who is the best friend of art? The long-haired men and the short-haired women who cover every new artist and production with their slobbering praise, or a great critic like the late John Ruskin, who desired every achievement in art or science to be merely a stepping-stone to higher and better things? Immunity from criticism is the death of progress. The idea that "the king can do no wrong" no longer obtains in civilized countries. Honest, fearless criticism is a constructive force that creates and upbuilds. Flattery is the cloying food that lulls the pampered stomach of the degenerate into swinish sleep. Great men and great institutions welcome intelligent criticism as the measure of their success. Self-sufficiency is only a synonym for decay.

On the other hand, mere abuse recoils upon the head of its author. If a journal should continually snarl at the heels of pro-

gress and oppose every new method or discovery, it would soon find itself without readers, because they would readily recognize it as an enemy of the profession. On the contrary, dental journals that always say safe things, that predict frost in January and flowers in June, can never wield any influence. To be always "eloquently satisfied with things as they are" may please the monopolistic managers of a trust, but journals conducted on this line are sure to be poor, emasculate things, unworthy the serious consideration of strong men. In this connection we notice that two of the organs whose editors invariably sneeze in concert when their trust masters take snuff, hasten to commend this unsigned circular. The *Dental Review* says, "This sounds reasonable." Perhaps the editor lacked the courage to say more. While the editor of the *Indiana Dental Journal* clasps his pious hands over his trust-filled paunch and sacrilegiously exclaims, "And to this we say, Amen." We feel constrained to remark that next in criminal responsibility to the man who utters an anonymous slander are the feeble apologists for his act.

Were the circular not under the stigma of bastardy we should ask its author for a bill of particulars. We assume, and are rather proud of the assumption, that the DENTAL DIGEST is one of the principal objects of attack, presumably because we have dared to point out some existing evils. What has this journal ever said or done to the injury of dentistry in this or foreign countries? Have we criticised the colleges *per se* or have we attacked a few abuses that have from time to time fastened themselves upon some of the educational institutions of this great profession? The DIGEST always has been and is now standing for the right, and will always dare to fearlessly criticise any wrong-doing, believing that our action will redound to the benefit of the whole profession.

It is unfortunately a fact that American dentistry has fallen into some ill-repute in Europe during recent years, caused chiefly by bogus diplomas which have been sold over there by disreputable institutions in this country. To charge that this deplorable condition is due to the men of broad ideas and noble impulses who have pointed out and criticised shortcomings, with the sole aim of improvement, is too preposterous and biased to be considered. Nothing could ever lower the standing of American dentistry and the reputation of American dental colleges, both here and in Europe,

so much as this slanderous anonymous circular, which will certainly be ascribed to those in charge of the colleges. The great majority of the members of the National Association of Dental Faculties are men of high ideals and unimpeachable character, and we do not believe for one moment that the wretched screed was issued with their consent. Some one or more of their number must have perpetrated it, however, and what must the dental profession throughout the world think of our institutions when even one of our educators will stoop to such methods?

In conclusion, we cannot refrain from alluding to the pusillanimous threat of a boycott recommended by the poor blunderers. Because this journal and eminent men have dared to stand for the right, that ridiculous and un-American mode of warfare, the boycott, is urged—not by an Irish walking delegate to striking hod-carriers, but by those who call themselves educators. What an elevating influence this will have on the young men in their charge.

Notices.

VERMONT STATE DENTAL SOCIETY.

The twenty-fourth annual meeting of the Vermont State Dental Society will be held at St. Johnsbury, March 21-23, 1900. A cordial invitation is extended to all dentists.

THOS. MOUND, Sec'y, Rutland.

NATIONAL DENTAL ASSOCIATION.

The annual meeting of this organization will be held next June at Old Point Comfort, and the clinic committee are very desirous of making this branch an important feature. The majority of the clinics will be given on models, making what is known as table clinics. Anyone having anything new or original that they would like to present will confer a favor upon the undersigned by communicating with him at once.

T. P. HINMAN,

Inman Building, Atlanta, Ga.

LATEST DENTAL PATENTS.

- 32,154. Design, handle for dental instrument, William E. Harper, Chicago.
- 641,672. Dental clamp, Walter I. Brigham, South Framingham, Mass.
- 641,930. Artificial tooth, Robert Brewster, Chicago.
- 642,114. Toothbrush, Charles L. Hall, Oconto, Wis.
- 642,404. Head-rest, Basil M. Wilkerson, Baltimore, assignor to S. S. White Dental Manufacturing Company, Philadelphia.
- 642,405. Dental chair, Basil M. Wilkerson, Baltimore, assignor to S. S. White Dental Manufacturing Company, Philadelphia.

- 642,536. Combined dental engine and chair, Charles C. Southwell, Milwaukee, Wis.
 642,959. Head-rest, Alexis E. Caron, assignor to T. E. Caron, Kankakee, Ill.
 643,036. Dental articulator, James W. Bryan, Russellville, Ky.
 543,039. Dental plugger, Cecil L. Calvert and E. Anderson, Sundance, Wyo.

TRADE-MARK.

- 34,072. Tooth paste, Thymo Chemical and Mfg. Co., Columbus, O.

Copies of above patents may be obtained for 10 cents each by addressing John A. Saul, Solicitor of Patents, Fendall Bldg., Washington, D. C.

MASSACHUSETTS BOARD OF REGISTRATION IN DENTISTRY.

A meeting of this board for the examination of candidates will be held at 563 Tremont street, Boston, March 21, 1900, at 9:30 a. m. Examination in operative dentistry at 10 o'clock. Each candidate must come prepared with rubber dam, gold and instruments, to demonstrate his skill in operative dentistry. Anyone who wishes may bring his patient. So far as possible patients will be furnished.

The theoretic examination will include operative dentistry, prosthetic dentistry, crown and bridgework, orthodontia, anatomy, histology, surgery, pathology, materia medica, therapeutics, physiology, anesthesia, chemistry and metallurgy, and will be held at Civil Service Rooms, State House, commencing Thursday, March 22, 9:30.

All applications, together with the fee of \$20, must be filed with the secretary of the board on or before March 14, as no application for this meeting will be received after that date.

Candidates who have taken an examination, and desire to come before the board again at this meeting, must notify the secretary as above in order to be registered.

G. E. MITCHELL, D.D.S., Secretary,
 25 Merrimack street, Haverhill, Mass.

INTERNATIONAL DENTAL CONGRESS. REPORT OF TRANSPORTATION COMMITTEE.

The Sub-Committee on Transportation has completed arrangements with the well-known tourist firm of Thomas Cook & Sons, No. 251 Broadway, New York, so that dentists who expect to attend the Congress to be held in Paris, commencing August 8, 1900, may secure for themselves and families steamship and railroad tickets and hotel accommodations at the minimum of expense and trouble.

In making these arrangements the committee has taken into consideration that while some of the delegates may wish to secure only transportation from New York to Paris and back to New York, many delegates will wish to visit other parts of Europe during the summer, and they have planned the following tours to assist such in the selection of a trip that the time at their disposal and their means may suggest.

Tour 1. A. From New York by the Red Star Line steamer "Friesland" on July 18 for Antwerp, thence by rail via Brussels to Paris, returning same

way to New York. First-class passage providing berth at minimum rate for two-berthed room, \$157.85.

If traveling second-class from Antwerp to Paris and return, fare would be \$4.65 less.

By traveling on steamers "Kensington" or "Southwark" of same line fare would be reduced.

B. Via Cherbourg. From New York by North German Lloyds steamers "Barbarossa" and "Friederich der Grosse," sailing July 12 and 19 respectively for Cherbourg, thence by rail to Paris and return same way (twin screw service only). First class passage, providing berth in room for two persons (minimum rate), \$177.

C. Via Cherbourg. From New York by Hamburg-American line steamers "Pennsylvania" and "Pretoria," sailing July 14 and 21 respectively to Cherbourg, rail to Paris and return via Boulogne-sur-Mer and Hamburg-American steamer (twin screw service) to New York. First-class passage, providing minimum fare for berth in room for two persons only, \$184.25.

Lower fares can be obtained if occupying berth in room with two or three other occupants.

D. Via Boulogne-sur-Mer (Holland-American Line). From New York by twin screw steamers "Potsdam," "Staatendam" and "Rotterdam," sailing July 7, 14 and 28 respectively to Boulogne-sur-Mer, thence by rail to Paris and return same way to New York. First-class passage, providing minimum fare for berth in room for two passengers, \$163.

If traveling second-class from Boulogne to Paris and return fare would be \$3.80 less. Lower fares can be made by leaving on steamer "Sparndam" July 19. Tickets can also be arranged via Southampton or Liverpool at proportionate rates.

Tour 2. To provide hotel accommodations in Paris for two weeks (14 days and 13 nights) at Grand Hotel du Trocadero, carriage drives for three days, including excursion to St. Cloud and Versailles, 20 tickets of admission to exposition and transfers to and from railway station to hotel, \$65.

Tour 3. One week's tour to Switzerland from Paris, visiting Lucerne, Interlaken, Thun, Berne, Lausanne, Lake Lemman, Geneva, including hotel accommodation, sight-seeing, etc., second-class R. R., \$50.

Tour 4. One week's tour from Paris to Mayence, thence by steamer on Rhine to Cologne, rail to Amsterdam, The Hague, Rotterdam, Antwerp, Brussels, Antwerp, Harwich, London, including second-class railway travel, first-class on steamers, hotel coupons (3 meals per day with lodging), \$42.50.

Those traveling via Cherbourg can return by steamers of same line from Southampton, and so make short tour from Continent through England in connection.

There is a U. S. revenue tax of \$5 upon each ticket, regardless of the number of passengers in whose name it may be made out.

Should any one wish to make a longer tour than any of the foregoing, or one with a different route, Messrs. Cook & Sons have such a large variety of tours already planned that there need be no difficulty in making a selection to suit the taste, means or the time at the disposal of any one.

The war in South Africa has caused the withdrawal of many of the English steamships. Passenger accommodations across the Atlantic will be more limited than usual this summer, while the Paris Exposition is attracting great numbers, so that the committee wish to impress upon delegates the great importance of securing their steamship accommodations at once.

Address all communications regarding steamships, railroads, hotels, etc., to Messrs. Thomas Cook & Sons, 251 Broadway, New York.

A. W. HARLAN,
W. E. GRISWOLD,
W. W. WALKER,
WILLIAM JARVIE (Chairman),
Transportation Committee.

News Summary.

DON M. GALLIE of Chicago had the misfortune to break his leg recently.

S. P. LARMER, a dentist at Albany, Mo., died Feb. 19, 1900 aged 62 years.

E. B. MARSHALL, a dentist at Cedarton, Ga., committed suicide on Feb. 8, 1900.

B. F. GANGEWERE, a dentist of Bethlehem, Pa., died Jan. 29, 1900, aged 55 years.

PRACTICING DENTISTRY without a license cost a Kansas City dentist \$100 recently.

E. B. HITCHCOCK, a dentist of Newton, Mass., died Jan. 26, 1900, at the age of 45 years.

ALBERT CRAIN, a dentist of Syracuse, N. Y., died suddenly of hemorrhage, Feb. 11, 1900.

L. G. THORPE, a dentist of Akron, Ohio, has secured a patent on a novel fruit-jar covering.

MISSING.—First Dental Drummer: How did you find trade on the road?

Second Ditto: Didn't find it.

ABSOLUTELY PURE WATER for the sterilization of instruments prevents dulling the edges of cutting instruments.

WHO WILL SATISFY HIS WANTS?—The Chicago *Tribune* of Feb. 18 contains the following: "Wanted—A dentist's diploma from some reputable college."

ODONTOLOGICAL SOCIETY OF THE WASHINGTON NATIONAL UNIVERSITY held its fifth annual banquet Feb. 13, 1900. Forty-five dentists were present, and the gathering was a great success.

DR. EVANS' HOUSE FOR ROYALTY.—The city authorities of Paris have rented the house and park given to the late Dr. Evans by the Empress Eugenie, and will use same for the accommodation of the royal guests during the coming exposition.

BARBERS IN CLEVELAND have been pulling teeth recently and the state board has had them indicted. Some unlicensed dentists were also caught in the dragnet.

WASHTENAW (MICH.) DENTAL SOCIETY at its last meeting elected the following officers: President, J. A. Watling; Vice-President, W. H. Jackson; Secretary and Treasurer, R. B. Howell.

OAKLAND (CAL.) DENTAL CLUB elected the following officers at its meeting Feb. 7, 1900: President, Geo. H. Carleton; Vice-President, H. G. Chappel; Secretary, O. R. Van Amriarge; Treasurer, W. F. Lewis.

CHLOROFORM CAUSES DEATH.—A woman at Lorain, O., died Feb. 18, 1900, after an administration of chloroform given previous to extraction of several teeth. It is thought she had heart trouble.

PITTSBURG DENTAL SOCIETY at its last quarterly meeting Jan. 25, 1900, elected the following officers: President, C. J. Reynolds; Vice-President, Geo. L. Simpson; Secretary, W. L. Fickes; Treasurer, Geo. R. Shidle.

IN POOR TASTE.—The obituary of a Brooklyn dentist tells us that he was a member of a mineralogical club, and he might fittingly have been a member of the stonecutters' union or the plumbers' alliance.—*Boston Journal*.

DIFFERENCE OF OPINION.—Little Clarence: Papa, what is the difference between firmness and obstinacy?

Papa: Merely a matter of sex, my son.—*Jour. Med. and Sc.*

FRANKLYN L. CALDWELL, a dentist employed in New York by Dr. E. P. Hayes, proprietor of Siegel-Cooper's dental parlors, shot Mrs. Hayes and himself on Feb. 24, 1900, both dying instantly.

HYPOCHONDRIAC PROGNOSIS.—A woman whose doctor asked after her health replied dolefully: "I feel very well; but I always feel bad when I feel well, because I know I'm going to feel worse afterward."—*Med. Council*.

SIMILAR SYMPTOMS.—Percy (fervently): Does your father suspect that you love me?

Ethel (ecstatically): No, Percy; he—he—thinks I've got malaria.—*Puck*.

ARMY DENTAL BILL.—On Saturday, Feb. 17, the House Committee on Military Affairs gave a hearing on the bill to provide a dental surgeon for every regiment in the army. The bill was to be further considered last week, and it is understood that the committee report would be favorable.

R. L. POLK & Co., Detroit, publishers of the Dental Register of the United States and Canada, request that all practicing dentists notify them of removals, deaths, newcomers and new dental societies organized in their vicinity. This information will materially aid in revising the register.

EDITORIAL GAME LAWS are stated in an Eastern publication to be as follows: "Book agents may be killed from Oct. 1 to Sept. 1; spring poets, from March 1 to June 1; scandal-mongers, from April 1 to Feb. 1; umbrella borrowers, from Aug. 1 to Nov. 1, and from Feb. 1 to May 1. Every man who accepts a newspaper for two years and on being presented with the bill says, 'I never ordered it,' may be killed or the spot without reserve or relief."

ILLINOIS STATE BOARD SUED.—A woman in Chicago recently filed a petition in the supreme court asking that the state board be compelled to issue her a license, inasmuch as she had successfully passed the examination, and the board discriminated against her because of her sex. The board replied that the plaintiff had made a signal failure in taking the examination, and the case has been dropped.

SKULLS AND BRAIN CAPACITY.—Professor Arthur Thompson, in the October number of *Knowledge*, deals with the form of skulls and brain capacity. The average weight of a man's brain is about fifty ounces, that of a woman about forty-five ounces. This difference between the sexes is less marked in savage than in civilized races, and is apparently explained by the fact that in the higher races more attention is paid to the education of the male than the female, and consequently the brain is stimulated to increased growth.—*Med. Record*.

INDIANA STATE LAW SUSTAINED.—Last month we remarked that an unregistered dentist in Indiana who had been convicted in the police court had appealed to the criminal court. The judge of the criminal court on Jan. 27 at Indianapolis has sustained the dental law, although he believes it to be unconstitutional, "as it takes from the executive and administrative departments of the state the right to appoint to office, and places the appointment of officers of a state board in a private corporation." The judge felt, however, that the supreme court could and probably would hold the law constitutional, so he decided against the unlicensed dentist.

EQUAL TO THE OCCASION.—"Can you minister to a mind diseased?" asked Blueglum, wearily. "Can you give me a nepenthe that will drive away from brain and heart memories of a desolate past and forebodings of a dreary future?" And Pilmixer, pharmacist, said he hoped to die if he couldn't, and compounded him straightway a little dose of quinin, wormwood, rhubarb, castor oil, pain-killer, ipecac, garlic and cayenne pepper, mixed it up in a quassia cup with a little pine-top whiskey, and told him to drink it down and see if he could remember anything for a week.—*Burdette in Brooklyn Eagle*.

OBSTINATE HICCOUGH.—H. E. Belcher, M.D. In my hands, and in others, this method has proved instantaneously effectual. It is the administration of half a dram of ext. ergotæ liquidum. The case in which I used it was that of a young man engaged in business, but with great difficulty, as he was unable to speak five words without being interrupted by a hiccough. This had continued for some hours when I saw him casually. On my suggestion he sent for a draught containing 2 drams of ext. of ergot and 1 dram of sodii bicarb., to be taken in four doses at half-hour intervals. He, however, only took one dose, as he did not hiccough once after it.—*N. Y. Lancet*.

WISCONSIN STATE BOARD IN DANGER.—M. J. Rice, a dentist at Sparta, Wis., was refused a license by the state board because they claimed that the diploma which he held from a Kansas City institution was unrecognized and that said school sold diplomas for \$5. Dr. Rice brought a mandamus suit to compel the board to issue him a license, and then started in to lick the examiners. Rice, so far as weight is concerned, belongs in the Sharkey and

Jeffries class, while the man he attacked, Dr. W. H. Carson, would weigh in with Dixon and McGovern. The next morning Rice was fined \$5 and costs in the police court.

SUBMITTED.—A Southern planter went to New Orleans several months after General Butler had taken the reins in his hands and acquired a reputation for "tyranny." One of the first things he saw was the placards of a furnishing store posted on walls and fences: "Get your shirts at Moody's." The planter saw it again and again, and mused deeply upon it. "It's another of Butler's orders," he said to himself. "He's probably a partner in the concern, and what he says goes; so I suppose it's best to submit. I don't need any shirts, and it's a shame to be compelled to buy 'em now; but I don't want any more trouble." He accordingly went to Moody's and bought half a dozen shirts.—*Keystone, Philadelphia.*

PLASTER OF PARIS IN TRACING AND OPENING FISTULAS.—Dr. J. F. McCone of San Francisco sets forth a new method of surgical procedure, which is, that in ischio-rectal fistulas the fistulous tracts and canals be injected with soft dental plaster of paris, that it be allowed to harden, and that the fistula and its ramifications could then be more easily and effectually dissected out, leaving a clean, fresh wound, which would heal by first intention. He had employed the method in one case with entire satisfaction. His colleagues, however, suggest a number of objections to the procedure, and according to the discussion reported in the *Occidental Medical Times* it does not meet with ready acceptance, though it has some utility.

CELESTIAL ANATOMY.—Sherlock Holmes, the great detective, had reached the gates of heaven; St. Peter was indeed pleased at his advent, as he was sorely puzzled because Adam and Eve had somehow been admitted by mistake, and he was unable to identify them. Holmes, after offering his services, instructed St. Peter to line up all the male and female angels in separate columns, devoid of their celestial robes, and promised soon to identify the unwelcome guests. After a tour of inspection he returned to St. Peter in triumph with the announcement that he had located the desired parties, and immediately pointed them out. When asked about his method of identification Holmes said, "Why, that's easy; they're the only ones amongst all present *without navels.*"—*Factotum.*

IOWA WISHES EXAMINATION TAX INCREASED.—The Iowa State Dental Society will introduce a bill during the present legislative session to increase the examination fee for entering the practice of dentistry in the state from \$10 to \$25, and to abolish the annual renewal fee of \$1 now in vogue. The bill will also provide greater restrictions than at present governing dental schools. It also seeks to provide a special board of examiners, to be appointed by the governor, from a list made out by the state society. The meetings of the board are to be made public. The board is to make its own rules, and each member is to receive \$5 per day for actual work. The secretary-treasurer shall receive \$200 per year, and all money taken in beyond necessary expenses is to be turned into the state treasury, and all bills audited by the auditor of state.

NASAL CATARRH.—One of the best alkaline, detergent and dissolvent solutions is the following:

R Bicarbonate of sodium.....	5 grains
Biborate of sodium.....	6 grains
Chlorate of sodium.....	6 grains
Bicarbonate of potassium.....	6 grains
Distilled water.....	1 fluid ounce

An excellent solution to allay irritation following operations and in acute inflammations is equal parts of the aqueous extract of hamamelis and distilled water, used at a temperature as high as can comfortably be borne. The alkaline solution should be used only in chronic conditions.—*Kytr Inter. Med. Mag.*

WHAT CONSTITUTES AN ACCIDENT.—A man died not long ago in Vermont in consequence of perforation of the intestine by sharp fragments of some indigestible material swallowed with the food. He was the holder of an accident policy insuring him, according to the usual formula, against "bodily injury sustained through external, violent and accidental means." The company refused to pay on the ground that the cause of the man's death was not an accident, but the court has decided that this was an accidental injury within the meaning of the policy. In New York state it has been decided that the taking of poison by mistake is not an accident in the meaning of a similar insurance policy, but in Illinois the courts have ruled exactly the opposite.—*Med. Record.*

MICROBES IN THE BEARD.—Dr. Schoull of Tunis has discovered that the beard is simply a "happy hunting-ground" of bacilli. He has proved it upon the guinea pig which he has inoculated with the "material obtained from beards and mustaches," with results distressing to the guinea pig and alarming to those who had been in more or less contact with the beards and mustaches aforesaid. This is a very disagreeable discovery, and may seriously affect the popularity of a form of facial adornment which has hitherto been regarded as open to no other objection than that it is a nuisance to its wearer when in the act of taking soup. But what are a few shreds of vermicelli compared with a whole army of able-bodied bacilli lying in ambush for their victims, and, what is more, ready to make victims of anybody who happens to come within their range?—*Sanitarium.*

LESIONS OF THE LATERAL SINUS RESULTING FROM INJURIES OF THE HEAD.—Gangolphe and Piery (*Revue de Chirurgie*) report a case of injury to the head with laceration of the lateral sinus, together with seven other cases collected from the literature, and as a result of their study conclude that such lesions may be caused by a double mechanism—namely, by laceration under the influence of a splinter of bone or of a foreign body, and by rupture in consequence of separation of fragments of fractured bones. As a result hemorrhage takes place and a clot forms between the dura mater and the calvarium. The seat and the extent of the clot are dependent in part upon the adhesions of the dura mater and in part upon its detachment before the hemorrhage. Frequently there coexists with the extra-

sation a preceding semifluid currant-jelly, intra-arachnoid effusion, covering the surface of the hemisphere opposite to the injured sinus. The symptomatology of lesions of the lateral sinus is most variable; it may at times be that of central compression and at other times that of an attack of apoplexy due to cerebral hemorrhage. Not only is the diagnosis of the sinus injured most often impossible, but often also the presence of an intracranial hemorrhagic effusion from injury of a vessel cannot be recognized, especially when the symptoms of apoplexy as from cerebral hemorrhage are present. In cases of difficult diagnosis, even when only a knowledge of an apoplectic seizure and of previous traumatism is obtainable, steps should be taken as if the existence of hemorrhagic intracranial extravasation of traumatic origin was assured. If a lesion of the lateral sinus is certain or can be presumed, one of two courses should be pursued. If the sinus is exposed, the wound is tamponed after careful removal of splinters or foreign bodies. If the sinus is not exposed, trephining should be undertaken at or near the point of traumatism, independently of the indications afforded by cerebral localization. These indications may even mislead and cause the application of the trephine at a point remote from the seat of hemorrhage. When the lesion is found the sinus is tamponed with iodoform and gauze.—*Med. Record.*

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